DICAL PROOF OF
E MIRACULOUS

A Clinical Study

by

H. J. C. Beck

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BERTRAM C.A WINDLE Kt. K.S.G. FRS F.S.A.

The other book is an excellent translation by a Benedictine, who is also a medical man, of a well-known and admirable treatise by a skilled physician. Here are details of diseases of a very different kind, quite untouched by the "cures" but at times miraculously removed and in such a way as to prove that the process has nothing of the natural about it. A conclusive, and very important, book which may be commended to the attention of every medical man, not to speak of others interested in the question of the miraculous, since they will find here evidence which must convince the most skeptical that he is face to face with something otherwise inexplicable. B. C. A. W.

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MEDICAL PROOF OF THE MIRACULOUS

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A Clinical Study

by

E. Le Bec

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Translated from the French by Dom. H. E. IZARD, O.S.B., L.R.C.S., M.R.C.P., *with an Introduction by* ERNEST E. WARE, M.D., M.R.C.S.
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Introduction

ALREADY translated into several European languages, Dr. E. Le Bec's *Preuves Médicals du Miracle* is now presented for the perusal of those who desire the work in English.

Although all may not assent to certain of the biological and pathological statements made by the author, his work offers precise scientific evidence of some marvellous cures which have occurred at Lourdes and elsewhere, together with clinical histories of the patients concerned.

It must be remembered that if in some instances clinical details are sparse, records as kept in hospitals do not obtain in ordinary practice, from which many of these cases are culled.

The paramount importance of the TIME FACTOR is well elucidated. Its brevity must be acknowledged by all those who practise medicine and surgery as something unknown in ordinary working experience.

The case of De Rudder, which occurred many years ago, is valuable in that it affords *post mortem* evidence of the existence of a fracture and its cure, and for this reason it is singular in the series. In conditions of such chronicity, it will be acknowledged that surgical consultations are often few and far between; consequently the evidence of the existence of the fracture immediately before the cure is given by witnesses who hold no surgical qualification, but to whom credence can nevertheless be given.

In certain cases which are studied the author gives adequate reasons for the absence of

immediate medical evidence, but in all cases scientific testimony is proximate, and the immediate evidence is given by observant witnesses who had every reason to be truthful.

ERNEST E. WARE, M.D.(Lond.)

The translator desires to thank the Rev. Dom Ethelbert Arnold, of St. Augustine's Abbey, Ramsgate, and Dr. George Cox, K.S.G., of the Medical Bureau of Lourdes, for much help and assistance in the preparation of the MSS. He has also to acknowledge the great kindness of E. F. S. and M. M. S., whose generosity made possible a long stay at Lourdes, where a considerable part of this translation was made.

Author's Preface

SCEPTICISM with regard to supernatural cures is the normal state of mind of most medical men. Some declare that they are not given serious medical proof; others that the observations are biassed, that the accounts of the symptoms of the illness are distorted, and that the natural processes of the cure in question are concealed. Neither can the criticisms of Catholic doctors be neglected. Their contention is that in some instances, when the alleged course of events has been so diametrically opposed to pathological laws, the cases have not been studied with sufficient scientific exactitude.

It is to reply to these grave objections that this study has been undertaken.

I have not desired to report upon and examine a large number of cases; those dealt with are limited to typical examples, and whoever examines these with scientific care will be forced to admit the positive intervention of the supernatural. I decided that it would be more profitable to choose types of illness affecting different anatomical systems, in order to show that the repair of the organic lesion has been effected in a manner absolutely contrary to the course of events which we encounter in medical practice.

From the study of supernatural cures it will be seen that the principal sign of the intervention of a force superior to nature consists in the rapidity or instantaneousness of the cure. We are therefore entitled to appeal to the *absence* of a factor normally present, namely, the TIME FACTOR.

Time is an absolute necessity for the progress of physiological processes, and where it is lacking, when anatomical structures are evolved without it, the progress of events cannot be natural.

The pathological cases that I have chosen to study are eleven in number :

Varicose veins,
A suppurating fracture of the leg,
A non-suppurative fracture of the thigh,
Pott's disease,
An ulcer of the leg,
Lupus,
Club feet,
A case of peritoneal tuberculosis with intestinal fistulæ,
A case of six intestinal perforations,
Two cases of recurring cancer, one of the face, another of the tongue,
Pulmonary tuberculosis with cavitation.

The following is my method of procedure : First I describe the case, then demonstrate its authenticity, either by medical evidence when that is possible, or by absolutely trustworthy witnesses. Then each case is discussed in the usual medical form, to show the absence of the time factor, and the material impossibility of a natural cell production to produce the anatomical repair of the lesions. Perhaps some doctors will consider that I insist too much on the absence of the time factor—but that is the whole crux and characteristic of the supernatural cure. Medical science teaches us that the normal formation of

cells and tissues takes a certain amount of time, and that a tissue is never formed instantaneously.

If, then, one can prove in certain definite cases, the instantaneous formation of cells and reconstruction of tissues, it is impossible to see here a normal evolution of cellular life, and it is this precisely which constitutes the supernatural fact.

I have prefaced the clinical description of the cures by a study which I have called the *Physiology of the Supernatural in Medicine*. Taking as a basis the clinical facts, demonstrating a reconstruction of the tissues, I endeavour to determine the "how" of the supernatural cure. In certain cases it is possible to admit an evolution of anatomical elements already existing; a special evolution taking place with extreme rapidity, but not demanding the production of elements not already existing, nor the suppression of existing morbid elements. But in other instances the re-constitution of the tissues cannot be explained save by means of matter (mineral salts not existing in sufficient amount in the body) formed by a supernatural force. Again, in others, the suppression of morbid elements of which there remain no trace in the body of the cured person, by supernatural agency must be admitted. I appreciate the fact that a large number of medical men reject almost instinctively evidence given by those not versed in medical matters; but is it right to do this because the witness is devoid of medical knowledge? I have striven to show in certain of the cases studied that the evidence of persons totally unacquainted with

medical science presents, nevertheless, all the guarantees of certitude exacted by healthy criticism.

It is necessary also to reply to the objection which attributes the cures to intermediary agents. It has been easy to prove that the water of the piscina at Lourdes can do nothing, in a very large number of the cases, in the case of definite organic lesions; neither can suggestion be invoked, because, following the wise counsel of Benedict XIV, nervous maladies are systematically put on one side. Finally, the famous objection of unknown natural forces leads to the destruction of Nature by herself, which is an impossibility.

This work makes no pretence to introduce any medical innovations. All that I have said is to be found in the classical treatises on pathology and physiology. What is new and has not yet been put forward is the application of ordinary medical and scientific criticism to the study of these supernatural cures. An endeavour has been made to establish a scientific parallel between the progress of the supernatural and the progress of the same phenomena in the natural cure.

I have essayed to show clearly the radical difference which exists between these two processes. This difference is inexplicable without the intervention of a supernatural force.

Nowadays, manifestations of this supernatural force are seen at Lourdes with striking frequency —in the piscina, during the processions, or at the moment of the passing of the Sacred Host—

producing these instantaneous cures of diverse maladies. In the cures this mysterious force sometimes uses the existing living tissues; in other cases there appear elements not existing in the body immediately before the cure; or, again, the disappearance of morbid existing matter, as in the case of cancer, is completely effected. In this last instance, the phenomenon appears to be the inverse of creation.

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MEDICAL PROOF OF THE MIRACULOUS

Part One

CHAPTER I

MEDICAL MEN AND MIRACLES

ALTHOUGH there is an extensive literature concerning supernatural cures, the works which deal with the subject from a purely medical standpoint are few in number. One of the most important is the paper by Professor Duret.[1] The facts are presented under a clinical aspect, accompanied by physiological considerations, and imbued with the philosophical standpoint. Those who have this paper in their possession will see that I have borrowed usefully from it.

Naturally, I am also inspired by the numerous works on the great cures of Lourdes of my confrère Dr. Boissarie. I have also consulted with advantage the work of my friend Dr. de Grandmaison,[2] which views the cures from the clinical standpoint.

Our confrère Fr. Deschamps has devoted an

[1] Duret: *Les Guérisons des Lourdes, sur le passage du St. Sacrement.* Report of the Eucharistic Congress, London, 1908.

[2] Dr. de Grandmaison de Bruno: *Vingt Guérisons à Lourdes, discutées médicalement.* Paris, Beauchesne, 1912. English translation: *Twenty Cures at Lourdes.* London, Sands.

important volume to the cure of Pierre De Rudder, where he studies this miracle, both from the historical and scientific standpoint.[1] I mention likewise a small but careful study of Professor Lavrand of Lille.[2] Dr. J. Bon published in 1912 a well-documented thesis entitled, *Quelques guérisons de Lourdes.*

For myself, I have desired to take a point of view differing somewhat from these writers. Passing rapidly in review the physical intermediary agents, I have searched carefully into the clinical proofs obtained outside the natural processes known to medicine.

It will, of course, be understood that the nature of my surgical studies hinders me from examining these supernatural cures from the elevated standpoint of theology. I keep to my own province, the study of the cures solely from the medical point of view. My intention is to study not only the supernatural cures at Lourdes, but those also that occur elsewhere, although the first offer us a field of study which is extraordinarily rich.

Some of the supernatural cures which we see in such an astonishing abundance at Lourdes take place in the piscina (and I shall study presently what can be said of the intermediary action of the water), while others occur during the procession, or at the moment of passing, of the Sacred Host. In this case there is no inter-

[1] Deschamps: *Le Cas de Pierre De Rudder.* Bruxelles, Libraire de l'Action Catholique. Paris, Lecoffre, Gabalda, 1913.

[2] Dr. Lavrand: *La Suggestion et les guérisons de Lourdes*; *Question Scientifiques.* Paris, Bloud, 1903.

mediary between the sufferer and the Holy Eucharist. Instantaneous cures may be witnessed of pulmonary tuberculosis, Pott's disease, abdominal tubercle, ulcers, cancer, etc. These are definite lesions of an organic structure on which suggestion has no effect.

§

Curiosity in the Medical World.

That these supernatural cures excite constant curiosity in the medical world is evidenced by the growing numbers of medical men who visit Lourdes from all parts of the world. This curiosity is for the most part friendly. Undoubtedly it shows a transformation slowly working in the scientific world. It has ceased to be the fashion to ridicule the existence of facts of a non-material order and to cover with sarcasm those who study them. Indeed, there is now a definite reaction against the dogmatic materialism of the past generation.

We see medical men notoriously sceptical, who yet wish to study what occurs in certain unusual phenomena where they are presented with evidence of something outside and beyond matter. They ask themselves if there is not here definite proof of the action of the immaterial on the material, or, if one prefers expressing it so, of spirit on matter, or of soul on body ? Formerly the materialists were supported by the facts drawn from nervous disorders.

As the result of clinical experiments on hysteria, they concluded reasonably enough that suggestion is powerful in these cases, and they endeavoured

to equate to these nervous phenomena all other cures obtained in apparent contradiction to the laws of medicine. This is evidently a mistake, but at the same time an avowal of belief in an intermediate agent, which does not fall immediately under the evidence of the senses.

This change of attitude is the result of observations made by a large number of medical men, who find evidence in their practice of cures obtained manifestly outside the forces of nature. Is this different state of mind produced by the diffusion of the knowledge of these cures, which are certainly more numerous at Lourdes in our times than in times past? Or is it caused by realizing that suggestion is insufficient to explain the cure of organic lesions? It certainly is an involuntary avowal of that general inability to explain matters which drew from Brunetière that forcible expression "the bankruptcy of science."

It is easy for a believer to find the answer. Be that as it may, however, no one can deny the growing number of medical men who go to Lourdes wishing to examine the facts and to judge for themselves.

Not long ago, under the influence of Charcot, all that happened at the Grotto was treated with derision—an easy way of avoiding the serious examination of facts that were rather embarrassing. Eventually this manner of proceeding was re-considered; many deemed it wiser to endeavour to solve the problem on the spot, rather than to decide it offhand at a distance. Hence, medical men from all parts of the world are numbered

among the visitors to Lourdes; they include adherents of all creeds and believers in none. All are admitted at the Bureau des Constatations. The late Dr. Boissarie permitted them to examine the patients as they wished, and no one can deny that many have stated that the cures could not be explained by the employment of any natural intermediary agent.

§

Supernatural Cures Opposed to Physiological Laws.

I can well understand that a miracle finds implacable adversaries in the scientific world. In the preface of the work of Fr. Deschamps,[1] I said that the miracle, which the Church proclaims, is certainly a most disconcerting occurrence and absolutely contrary to biological laws.

When it is scientifically demonstrated, and scientific demonstration makes some cases certain, the miracle shows the powerlessness of our treatment and the restricted value of what the physiologists have codified under the name of the unchangeable law of nature.

Medical men, learned physiologists, and acute observers, have devoted long years to the study of nature; by their work science has made wonderful progress. They observed that vital phenomena—processes of nutrition, cellular evolution, etc., proceeded always in a like manner; they concluded quite naturally that this order could not be changed, and to their conclusions they gave the name of laws.

We have the habit of respecting these laws,

[1] A. Deschamps: *Le Cas de Pierre De Rudder.* Supra.

because we can do nothing against them. But why should we affirm that that which is impossible to the doctor, is also impossible to that Primal Cause which believers call God ?

Anatomists state that the growth of the bony skeleton ceases in man at the age of twenty-five. It is also generally admitted that animals grow for a quarter of their time of existence. But why this time-limit ? We know nothing about it. If the Creator had adopted this limit of twenty-five years for man, why should it be impossible for Him to vary this period ? Is it because we doctors have formulated this anatomical law and are powerless to vary this limit ?

What could hinder God from proceeding in another manner ?

In pathology we are accustomed to state that for the renewal of anatomical elements there must be a certain space of time, always the same in the same physiological conditions. Our therapeutic intervention does nothing else than put the tissues in the best condition so that cellular evolution may proceed without trouble, following its normal course.

But why should it be impossible that this cellular evolution should not take place in a different manner which passes our comprehension? I understand perfectly well that when it happens it must be disconcerting for medical men. Again, I find it quite reasonable that there should be an inclination to reject the miraculous, and to exact rigorous proofs to demonstrate it. When we

submit these proofs our request is simply that they shall be examined and discussed. It is astonishing to see cultivated intellects rejecting the miraculous for the sole reason that it is contrary to admitted law.

Dr. Julian Marcuse (*Berliner Tagblatt*, Oct. 13, 1902) gives us an example of this. He says: "The case of Pierre De Rudder cannot be true because it would be an affront offered to all the laws of biology and pathology." The expression "affront" is strong, but it is justified, for a miracle does go counter to biological laws, since it does not conform to those formulated by human science. For some scientists this fact is one to be much regretted.

CHAPTER II

PHYSIOLOGY OF THE SUPERNATURAL

Justification of the word Physiology.

THE expression the "Physiology of the supernatural" may seem unjustifiable; it is, however, justified in the sense in which I use it, for my purpose is to examine the various modifications of the vital phenomena which occur in the cures that I have investigated.

The study of the vital phenomena of disease is called pathological physiology, consequently the use of this word is justified when I apply it to these cures, which exceed the force of nature.

What I am endeavouring to do is to study not this mysterious force in itself—that belongs to theology—but the effects of its intervention in these supernatural cures.

It seems to me that the best plan will be briefly to summarize the vital phenomena which physiology studies in the normal and the pathological states, and demonstrate how these same phenomena have a different sequence of procedure in the supernatural cure.

As a medical man I should not dream of making this study of supernatural facts, except for the reason that they consist of cures which are capable of clinical observation, in which the differences between normal vital phenomena and those due to supernatural intervention can be observed.

§

Theological Classification of Miracles.

Theologians divide miracles into three classes :

(I) above nature, (II) contrary to nature, and (III) exceeding nature. A miracle of the first class is one which quite surpasses the forces of nature: for example, the restoration to life of a dead person. A miracle of the second class is one in which the effect produced is contrary to what should have occurred according to natural law: for example, the Three Children unhurt and untouched by fire in the furnace. The third class comprises those occurrences which only surpass the forces of nature relatively, and as regards their mode of operation: to this class belong nearly all the supernatural cures, for many of these sufferers could be cured naturally, granted the appropriate remedies and the necessary time.

Assuredly the cure of organic disease suddenly effected without remedies cannot be called natural.

Now let us turn our attention particularly to a point coming directly under medical verification, namely, the instantaneity, or, in other terms, the *absence of the time factor*. There are certain supernatural occurrences which do not require this factor of instantaneity; some even exclude it—for example, the fact of a person or some combustible object escaping combustion despite a long period in the flames. Here it is evident that the fact of the supernatural would be emphasized by the extension of the time factor.

If we consider the supernatural occurrences upon which medical men are more often called to give an opinion, or if we take cognizance of

the cures presented during a cause of beatification or canonization, we shall note that the instantaneity of the cure, in the sense which will be explained later, is almost always necessary.

We say *almost always* because, as a matter of fact, the supernatural might be seen in a case not of sudden cure, but one which was otherwise impossible; for instance, the disappearance of the cancer noted later on, or the restitution of sight to an eye the optic nerve of which was atrophied.

The requirement in supernatural cures of this instantaneity accentuates as it were those cures which, though slow, were naturally impossible.

In the cases in which the time factor is absent or very short, there is a rapid formation of physiological tissue which otherwise would have taken months to evolve, even were it then possible; this constitutes the sign and most characteristic proof of the supernatural.

§

Reduction to Cellular Unity.

When the phenomena of life are closely examined, it is seen that they are a summing up, a synthesis of the life of the cell. This life is subject to natural laws, and every time that cellular life breaks through the observances of these laws it is reasonable to conclude the existence of a force outside and superseding them.

Students of physiology will remember that the cell is a microscopic body which, in unison with other cells, forms all living tissue. At its origin the human body is represented by a single cell

which possesses the singular property of containing "in potentia" all our organs, differing as they do from one another.

The primitive cell is the result of the union of two other cells, male and female, and when these two cells unite, their coalescence causes the appearance of a cell differing essentially from the two parent cells, since it is endowed with the power of evolution—that is, it has the capacity of generating other cells having forms and properties which differ greatly from those of the parent cells. As soon as the primitive cell is constituted with its physiological properties it multiplies itself by dividing into two. The two daughter cells divide in their turn, very rapidly there is formed a small mass of cells termed the embryonic cells. This is the embryo.

Soon one of these embryonic cells forms a new and differentiated cell; this is the first nerve cell, and it is endowed with special properties. From it arises the nervous system, by which are manifested externally the properties of the soul.

Soon after another embryonic cell forms the primitive cell of the vascular system, and again another initiates the beginnings of the osseous and connective tissue systems. The other organs are gradually formed. When the body, the product of the embryo, is completed, this cellular life exists in all the organs; but in order that the cell may live, it must receive from the blood the principles necessary for its growth and sustenance.

If for some reason the cell does not receive

these principles, and yet, despite this fact, cellular life progresses or reappears after having disappeared, the intervention of a force other than natural is evident.

Applying these facts to the phenomena of supernatural physiology, the following scheme can be constructed, reducing all the facts to cellular unity, and to the biological phenomena which take place in its protoplasm.[1]

My task as a medical man is to investigate the cures from the medical and physiological point of view. Leaving to theologians the task of classifying such in the third or, exceptionally, in the second category, I endeavour to demonstrate how, in a certain number of well-authenticated cases, the vital phenomena effected in the cure do not follow the normal sequence.

§

Conditions Constituting Proof of the Supernatural.

We may now formulate the conditions requisite to prove supernatural cure. These conditions are three in number.

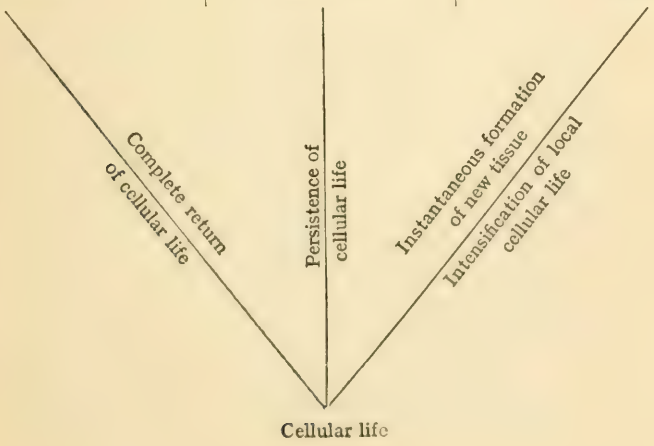
A minute examination shows that we can and ought to consider a cure as certainly supernatural when in the same case are found united the three following conditions :

I. The proved existence of a serious lesion in the tissues, or a loss of substance ; for example, a wound, osseous caries, or tubercles.

II. The proved existence of cicatrization, effected either instantaneously or in a time

[1] This name designates the substance which constitutes the body of the living cell.

MIRACLE above Nature.	MIRACLE against Nature.	MIRACLE beyond Nature.
Example :—Resurrection of a dead person.	Example :—The Children in the furnace.	Example :— Instantaneous formation of callus or scar tissue.
Effect of death on the cell.	*Effect of heat on the cell.*	*Effect of the absence of the factor Time on the cell.*
Coagulation of the cell plasm.	1st stage :—Elimination of water from the protoplasm.	Phenomena of assimilation in the cell have not had time to occur.
Arrest of phenomena of assimilation.	Precipitation of salts which are no longer in solution.	Nutrition and natural evolution impossible.
Arrest of disassimilation.		
Decomposition of protoplasm by bacteria.	2nd stage :—Gases set at liberty.	
Elimination of gases.	3rd stage :—Oxidation of mineral elements.	
Decomposition of the mineral principles.	Formation of ashes.	
Complete discontinuity through arrest of life.	Discontinuity through absence of physical conditions permitting life.	Discontinuity through absence of physiological conditions permitting life.
No cellular life.	*No cellular life.*	*No cellular life.*
MIRACLE	MIRACLE	MIRACLE


Complete return of cellular life
Persistence of cellular life
Instantaneous formation of new tissue
Intensification of local cellular life
Cellular life

manifestly too short for the normal processes of cure.

III. The permanence of the cure and the re-establishment of functions for a sufficient length of time, mere amelioration being thus excluded.

We shall see later on that these three conditions are all found united in the cases here examined, and we need not hesitate to regard such cures as supernatural.

§

Elimination of Nervous Phenomena.

It is customary to put on one side all phenomena which are purely nervous.

The physiology and pathology of the nervous system are not yet thoroughly understood, and there is still much discussion of all that relates to hysteria. Moreover, in this, as in many other things, the wisdom of the Church has anticipated medicine.

In his treatise, "Of the Beatification of the Servants of God,"[1] Pope Benedict XIV does not wish that cures should be considered miraculous which can be explained by the influence of the nervous system.

He allows only very rarely miracles with regard to the hysterical, epileptic or paralytic. He says, with a clinical sense most unusual in one who is not a student of medicine, "When it is a question of hysteria, it will not do to make the miracle consist in the disappearance of the

[1] *De Beatif. et Canon*, Lib. IV, Pars. I, Cap. XIII, n. 14. Roma, 1747–1751.

crises, but in the cessation of the *morbid state* that has produced them. It is to be noticed that hysterical women are subject to natural crises which may produce an entirely normal disappearance of their illness. It will then be very difficult to hold such cases as miraculous. If sometimes the postulators of causes of beatification have tried to do so, I have never seen them succeed." This quotation definitely proves that the Church is among the first to distrust facts which are produced purely under the influence of the nervous system.

In all cases in which there is doubt she prefers to hold aloof. It is, then, contrary to all truth to maintain that supernatural cures are only phenomena caused by natural nervous manifestations. It may be asked, is it wise, philosophically speaking, to say *a priori* that every cure occurring suddenly in a hysterical person can never be definitely supernatural ?

Surely this would be pushing rigorism too far !

Hysteria is a disease, and a hysterical person, just as well as any other, may be the recipient of the grace of being healed.

Pope Benedict XIV finally settled the question with regard to his own sphere, when he wrote that typical phrase quoted above : " When it is a question of hysteria, it will not do to make the miracle consist in the disappearance of the *crises*, but in the cessation of the *morbid state* that has produced them."

This simple phrase of the great Pope proves that without having made medical studies in

nervous diseases he yet understood the malady in a wonderful way, and distinguished its essence from its manifestations.

The essence of hysteria is, however, unknown to us. The most minute examination of the nerve centres has not yet revealed to us anything as to the nature of the lesions. Still, it is not unreasonable to think that one day this will be ascertained.

Meanwhile, the schools in interpreting the symptoms, dispute on the nature of hysteria, and the symptoms are the only things of which we are cognizant. For a long time the Salpêtrière School made of hysteria a definite morbid entity. Now a new school tells us that this conception is erroneous! All this variety of opinion arises because of our ignorance of any sound pathological basis which would serve as the substratum of the malady.

The discussion is *sine materia.* There is, then, nothing to oppose the opinion that this unknown substratum could be modified by supernatural intervention in such wise as to cure the general morbid state, with its accompanying train of symptoms. But as we see hysterical manifestations modified by natural causes it is prudent to put on one side nervous maladies to avoid all mistake.

It is evident how wise the Church is in observing a prudent reserve in a matter subject to such controversies; but, on the other hand, this prudence gives her the right to pronounce on certain cures when there are manifest proofs of the supernatural.

§

Special Clinical Phenomena of Supernatural Cures.
(a) Sudden Pain.

The supernatural cure often presents at Lourdes a strange phenomenon which is never noticed in the ordinary medical and natural cure. This is a sudden pain, often extremely violent, felt sometimes only in the affected part, sometimes diffused throughout the whole body.

"The sick," said Duret, "complain of feeling great distress, exhaustion, or intense cold. Sometimes they have attacks of shivering, trembling, or they faint; there is an apprehension of the end, and they become of a death-like pallor. Then suddenly follows a sensation of calm, rest, and well-being. The sick person has the physical sensation that he is cured. Some feel themselves impelled by an interior force which urges them to rise and walk, and this they do even though they feel very exhausted, as is evidenced by their pallor. They look like dead people emerging from their shrouds. They kneel, or follow the procession, though no one would think them capable of such an effort."

This first clinical observation does not affect directly the proof of the supernatural cure, since we have not made the fact of this sudden pain accompanying the cure one of the requisite conditions. Moreover, it is not a constant feature of the cures at Lourdes. There is evidently here some connection with the instantaneousness of the cure, and this explains why it is not met with in the natural cures. It is different,

however, with the next clinical observation, the absence of convalescence.

(*b*) *Absence of Convalescence.*

The absence of convalescence is another phenomenon very frequently observed in the miraculous cure. This is part of the supernatural cure, and in a way its sign and seal. It is a means by which the instantaneity of the cure is controlled and demonstrated. There is no convalescence—that is to say, the subject is able to perform at once those bodily functions which the illness had rendered impossible or extremely painful. He is cured, and the injured organs are rendered capable in a moment of performing their normal functions.

In many cases, despite the gravity of the illness and the exhaustion of the patient, the return to health has been complete.

Pierre De Rudder had remained eight years without walking, and he would certainly have had some stiffness in the ankle joint, such as takes place when the surgeon has not forestalled, by appropriate treatment, this form of fibrous ankylosis. He also had undoubtedly rigidity of the tendon sheaths, accompanied with retraction of the leg muscles, a condition which could not be overcome save by careful treatment with massage and methodical movement. This treatment lasts sometimes two or three months before the sick person can walk with ease or comfort.

But here all these inevitable complications completely disappeared, so that some hours after the sudden consolidation of the fracture De Rudder

was able to run to catch the vehicle that had come to take him to the station, and, having returned home, was very soon able to resume his strenuous work as a woodcutter.

Margaret Verzier, after the supernatural consolidation of her fractured thigh, could walk before Dr. Tournaire, and did so at his first visit.

In the sudden cures of tuberculous peritonitis we encounter the same surprising phenomenon. Dr. X. came to Lourdes with advanced tuberculous peritonitis complicated with an intestinal perforation, which had confined him to bed for nine months. He arose from his bed and took food within half an hour after the procession of the Blessed Sacrament. He told Professor Desplats that he felt able to get up at once, but he did not dare to do so in public, as his cure seemed to him so extraordinary. What restrained him was not a sense of prudence, quite natural in a medical man, but a feeling of doubt about the grace vouchsafed to him—a fear of being deceived about his return to health and of the reality of the total disappearance of an illness which, in the ordinary course, he knew would be fatal within a short time.

Gabrielle Durand, whose lungs, meninges, peritoneum, and vertebral column were successively attacked by tuberculosis, affords us a similar example. Carried twice to Lourdes in a metal splint on account of her spinal disease, she was cured suddenly in the piscina at her second visit. She raised herself and began to walk in the piscina. Tuberculosis had attacked many tissues

for a period of eighteen years, yet suddenly her whole state is changed, all her strength comes back.

It is the same with Amélie Hébert, the patient of Dr. La Néele of Lisieux, who had pulmonary tuberculosis, with cavity formation. She had arrived in Lourdes so exhausted by her hæmorrhages that she had several fainting attacks during the journey. The attendants at the piscina hesitated to bathe her, fearing too violent a reaction from the cold water. She left the piscina cured ; there was no further suppuration of the lungs or vomiting, and appetite returned. The re-establishment of her health was immediate and absolute. On her return to Lisieux Dr. La Néele verified at once the cure of the lungs, and testified to the excellent state of her health, which permitted Amélie Hébert to take up again her work on the land.

Here, then, are two typical cases where inveterate tuberculosis has disappeared, and where the return to healthy life has been absolute, without the patient going through even a short period of convalescence. I insist again on the mysterious absence of the period of convalescence, because it is never seen in our ordinary medical cures. Here, then, are two clinical phenomena, the one less important, the violent pain which accompanies the cure in a certain number of cases ; the other, more remarkable, the absence of convalescence.

It will be easy to demonstrate that in these supernatural cures there is evidence of vital actions which are absolutely inexplicable by known

natural causes. We shall study successively these phenomena, in cases of fracture, Pott's disease, ulcerated wounds, cancer, and varicose veins.

§

Physiological Pathology of the Supernatural Cure.

(*a*) *Cure of Fractures.*

The phenomena which occur in the supernatural cure of lesions of the osseous system differ markedly from those which occur in other tissues. We see the osseous gaps filled up by matter containing calcareous salts, which are not to be found in the body a moment before the cure.

It will be useful to narrate quite shortly the manner in which an osseous scar, that is to say "callus," is formed in a normal and natural recovery.

Fractures are cured by the formation at the extremity of the two osseous fragments of a slender layer of cartilage, of a thickness less than a millimetre, which is solidified gradually by the deposition of calcareous salts. This cartilaginous layer grows and ossifies in proportion as the salts mineralize the deeper portion in contact with the bone. Beneath the cartilaginous layer appear capillary vessels which carry the salts necessary for this mineralization.

The two cartilaginous coverings of the upper and lower bony fragments gradually approach each other, finally they meet, and the callus is united. At first, however, this osseous scar is soft and incapable of bearing the weight of the body. It acquires solidity and strength, by being mineralized, and this is effected by a deposit

of lime which the blood furnishes to it in the following manner—pure phosphate of lime, which is the principal foundation, is only contained in the blood in very minute quantities.

Schmidt calculated the quantity contained in the blood serum to be 1 gr. 60; Becquerel 1 gr. 47 for the whole of the blood, estimating the adult total average of blood at about 5 litres. This phosphate is derived by the blood from the food, and it is only after chemical elaboration by the digestive secretions that the blood is able to absorb this salt and carry it to the capillaries of the callus.

The quantity of salt deposited is proportionate to the number of capillaries and the quantity of blood which circulates in these microscopic vessels. It is therefore very slight. One does not hesitate to say that only a fraction of a milligramme of this salt can be deposited during a minute in the whole of the callus. The slowness with which this deposit of salt is made can be better realized if we recall the physiological conditions of the circulation in the capillaries.

The capillary vessels have a calibre of five to twenty thousandths of a millimetre. The rate of flow in the small capillaries is estimated as fifty-seven hundredths of a millimetre per second, but it is more rapid in the large ones and has not yet been calculated with precision.

The volume of blood which traverses a capillary during a second is very slight.

We know that the blood contains about 1 gr. 60 of phosphate of lime per litre, about 32 centi-

grammes. It is, however, impossible to give any accurate computation of the amount of mineral salts carried in the blood in a definite time, for all this depends upon the chemical and biological rates of assimilation by the intestines, and this is beyond our powers of measurement.

Knowing, however, the measurement of the capillaries and the rate of the circulation, the quantity of salt deposited in a second can only be extremely minute, for forty or fifty days are usually necessary to form callus sufficiently strong to carry the average body weight.[1] We think that we are correct in saying that the quantity of phosphates thus carried would be increased in the case of a person with a fracture above that of a normal individual, because the normal quantity, 0 gr. 32 per litre, only serves to maintain the adult skeleton, and in the case of a fracture the blood ought to carry a considerably increased quantity for the formation of the callus.

Here we might ask by what mysterious action this quantity of phosphatic salt deposits itself only from the capillaries of the injured bone and not elsewhere ?

Again, it would be equally interesting to discover what is the unknown force which determines that this excess of phosphate shall circulate only during the time necessary for the repair of the fracture, disappearing as soon as the callus is formed.

Physiology gives us no answer.

[1] Surgical operations practised to remove callus show that ossification is far from complete by the sixtieth day.

What then are the preternatural phenomena which occur outside the sudden formation of callus, as in the case of Pierre De Rudder or Marguerite Verzier ?

I have taken measurements of the tibia of Pierre De Rudder, and the osseous fragment which repaired the loss of substance of the bone can be estimated at about the weight of 5 grammes, hence a great quantity of phosphatic salts must have been deposited suddenly. It is quite certain that this quantity was not available in the blood at the moment of the miracle.

Can we say, then, that there is some unknown natural force which has instantaneously extracted from the blood much more phosphates than it contained ?

Whence came this amount which did not exist ? Is it necessary to say the blood has formed these salts ? That is to acknowledge a supernatural power, a creative agency, which unbelievers reject, but believers recognize.

Let us follow up our hypothesis. Could it be said that the quantity of salts, thanks to some unknown mechanism, was in solution in the blood, and that the blood was instantaneously despoiled of the total amount it contained ? But that is absolutely impossible, since the chemical composition of the blood is fixed and cannot be changed without causing grave illness. The subjects of miracle, however, are not ill—they are cured and in sound health.

Can we imagine these necessary salts deposited somewhere as a reserve in case of sudden cure ?

This is anatomically impossible, for there does not exist in the body a site where such phosphates could be stored. It is manifest that such reasoning has no scientific basis.

Again, can we suppose that the calcareous salts, which appeared suddenly at the moment of the cure, came from the mass of the same salts which exist in the skeleton, from which they have been derived ?

I shall show later on, when dealing with the cure of a case of Pott's disease, that this theory is also chemically impossible.

It is, then, a theory purely imaginary—a hypothesis—which is not only unsupported by fact, but which contravenes the phenomena of the physiological life of the osseous system. The blood is unable to transfer from one part of the body to another salts already combined with living tissues.

Moreover, it might be asked, so as not to shirk the problem, how could the blood, in this unique circumstance, take away one of the constituent parts of the skeleton and transport it instantaneously to the necessary spot where it would be fixed ?

Outside this untenable theory we are compelled to acknowledge that this quantity of phosphates did not exist in De Rudder's body and that it was deposited instantaneously by a force other than biological. Finally, we may safely say that physiology forbids us to assume that phosphate of lime drawn from its natural source could be furnished in such quantities to the callus instan-

taneously. This salt comes from the food, as mentioned before, and the following is the series of necessary changes through which it passes before arriving at the callus of the fractured bone.

I. Introduction of food into the intestine.

II. Action of intestinal secretions and ferments upon the food.

III. Liberation of phosphate of lime.

IV. Absorption of the phosphate by the blood.

V. Transportation by the blood to the cells, forming the new bone.

VI. Deposition of the salts about the cells.

Here we may point out that all these various operations by their very nature take place successively, and this excludes instantaneity. The instantaneousness of the cure constitutes the definite supernatural fact.

There is an aspect of the case of De Rudder which seems to have escaped the attention of observers, despite the fact of its importance: What happened to the superficial necrosed portion of the bone? These dead fragments of the tibia were certified to by Dr. van Hoestenberghe, in December 1874, and also by Dr. Verriest. The witnesses who assisted at the dressing of the wound the evening before and also the morning of the cure, saw these dead osseous fragments in the wound. This is an important point relative to the cure of the fracture. Every surgeon knows that such dead bone plays the part of a foreign body and is an obstacle to any cure until it has been removed. This removal

did not take place. They did not sequestrate spontaneously, so what became of them ?

To elucidate this matter for readers not familiar with surgical phenomena, allow me to make a short digression into the domain of pure anatomy.

Living bone is composed essentially of two parts. (I) A part hard, mineralized, not susceptible of growth by itself, and pierced by microscopic canals. (II) Another part soft, nitrogenous, living, capable of growth by itself, forming the blood capillaries and the cells of the marrow. These two elements (blood-vessels and cells) are contained in the small canals of the mineral portion. The mineral and nitrogenous portions united constitute living bone. If these parts are separated, if the capillaries and the cells of the marrow disappear, the bone dies. What remains is only the mineral portion, the corpse of the bone, known as a sequestrum. This necrosed, or dead, portion must be removed before the processes of repair can definitely commence.

In the case of De Rudder, the dead bone remained in the wound, forming an absolute obstacle to the formation of callus. For the formation of callus it was necessary first of all that one of the two following processes should occur : (I) Either that there should be a *revivis-cence* of the dead bone—that is to say, that the blood capillaries should instantaneously reappear, and also the cells, in all the canaculi of the mineral substance ; (II) or that the dead fragments, still adhering strongly to the bone at the moment of the last dressing, *should suddenly disappear* by a

means which I cannot explain, for they were not found in the dressing, as had happened when the first fragment was detached on a previous occasion.

If one may choose between these two hypotheses, I should be inclined towards the first, for we ought not to assume the fact of annihilation —that is to say, the return to a primitive nothingness, except in case of absolute necessity.

But really it matters little, for no natural force could effect either this annihilation or the sudden transformation into living bone.

It would be very interesting to know the internal process of a deposit of phosphates in a miraculous case of this sort, to ascertain if the salt has been carried in the blood to the capillaries of the callus, which implies a surcharge of salt, as it were, in the blood serum, or whether it has been deposited directly in the callus without passing by the blood. Unfortunately, this process escapes the evidence of the senses. Neither do we know how this large quantity of phosphate of lime has been able to appear instantly without passing in the blood, or without modifying profoundly its chemical composition, or, again, without causing the slightest systematic reaction.

Humanly speaking, the problem is insoluble.

(*b*) *Cure of Pott's Disease.*

The mode of cure of vertebral caries is well known. It varies according to the site of the disease and the extent of the lesion of the vertebral bodies. If the Pott's disease is not of old

standing, if the suppuration of the vertebræ is very limited or only superficial, the abscess dries up, transforming itself into fine, fibrous-looking threads. If a radiograph is made of disease cured at this early stage, nothing can be seen, for these fibrous threads do not show on the photographic plate. This slight osseous cicatrix is invisible to our processes of investigation. This was the case with my patient Gabrielle Durand. It is, however, another matter in the cure of Pott's disease with extensive destruction of the vertebræ. Then the cure is made by the deposit of calcareous salts, phosphate and carbonate of lime, along the vertebral column. These deposits reunite and consolidate the bodies of the vertebræ destroyed by the tubercular suppuration. The deposits may be of large size. In the museum of the medical faculty of Paris I have examined one which was more than 30 centimetres long and would weigh some 18 to 20 grammes.

Let us take a lower figure and say that a case of Pott's disease, cured suddenly, would require 10 grammes of lime salts. The chemical analysis of the blood tells us that it contains but 6 to 7 grammes. Where does the remainder come from ?

We know that the calcareous salts are taken up by the blood from the food, and in no other way. It is necessary that the patients can take food, but they arrive at Lourdes often in such a state of illness and exhaustion that this is practically impossible ; indeed, it is one of the reasons why they are taken there.

Must we, then, say that the salts, phosphate and carbonate of lime, have been suddenly taken from the osseous system ? It would be difficult to demonstrate it. To effect this result it would be necessary that the blood should carry some chemical substances capable of instantaneously dissolving an enormous mass of calcareous salts and then of depositing them again practically at the desired site.

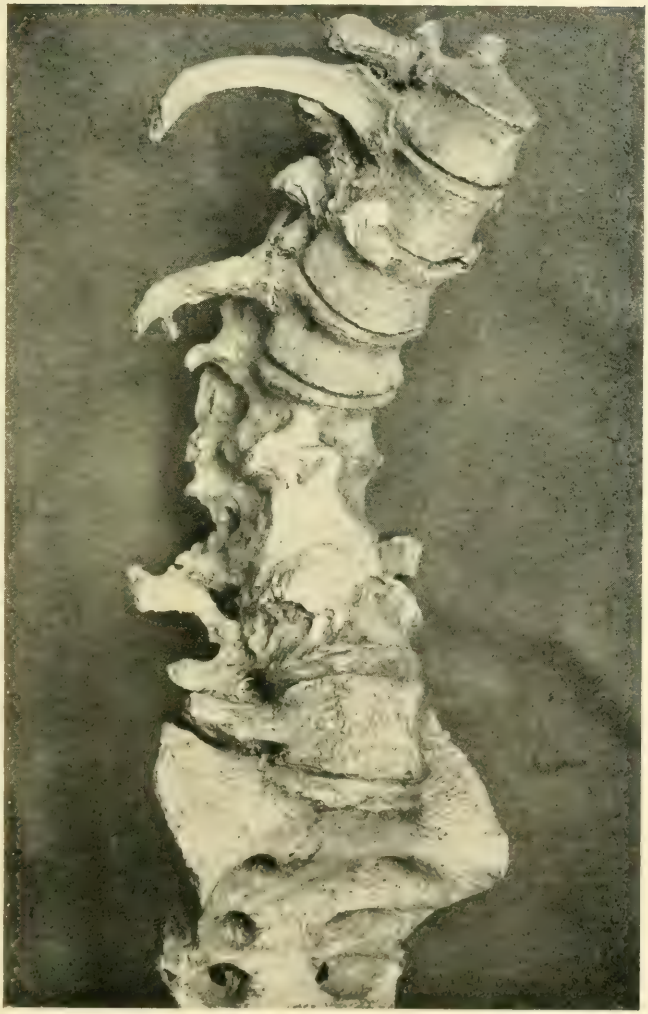
Chemical or other agents of this sort are non-existent.

We know that in certain diseases such as osteo malacia there is a loss of calcareous salts, and this is followed by a softening of the bony skeleton. But all this occurs slowly, and the course of the illness runs into years, and when the salts have been thus drained away the patient dies.

In certain pathological states of nutrition, a considerable loss of phosphate of lime takes place through the urine, but here the course of the disease is even slower.

In these maladies the blood is both the dissolver and the carrying agent, but it never deposits the salts in some other part of the body ; they are always eliminated by the urine. The salts that are deposited for the cure of Pott's disease come only from the process of digestion by assimilation, and never from the osseous system.

Now it would be absurd to say that the process of intestinal digestion can suddenly furnish the large quantity of salts necessary to repair the destroyed vertebral bodies. It must be, then, as I have demonstrated in the case of De Rudder,



Medical cure of a long-standing case of vertebral caries—destruction of the second and third lumbar vertebræ—incurvation of the vertebral column. In front of the diseased vertebræ is a large white plaque formed by calcareous salts, supporting the carious vertebræ. Higher up and at the side is another calcareous plaque of rounded outline which is reuniting two vertebral bodies.

(*From a photograph of a specimen in the author's collection.*)

that the calcareous salts are derived extraneously and by some other route than the digestive tract. And here precisely it is that the supernatural enters in.

§

Cure of Cancer.

Pathological physiology of the *disappearance of cancer* puts before us a process different from that which has just been discussed, but one by no means less interesting. Here we see not an evolution of old cells nor the creation of new ones, but the total disappearance of a living tissue, without leaving the slightest trace.

We can testify not only to the disappearance of the malignant growth, but also to that state of the blood and tissues which medical men term cancerous cachexia, a state which invariably accompanies cancer after it has existed some time. Here, then, is the sudden disappearance of the cancerous cell, with all its physiological accompaniments. It would be beyond the scope of this work to give an extensive study of what is known at the present day as to cancer, but for the benefit of the layman I shall give a short sketch which will enable him to grasp better what occurs in the supernatural cure—that process which I term " the physiological pathology of the miraculous " in the case of cancer.

Cancer is a growth formed by the union of cells which have the harmful property that whilst they grow rapidly they invade the neighbouring tissues and at the same time pour a poison or toxin into the blood. The cancer in growing

destroys the cells of the tissues that surround it, gradually penetrating them more and more. So much for the local state. As to the general condition, dissemination or generalization comes about by means of the circulatory system through the lymphatic and blood vessels.

The cancerous cells permeate the lymphatic spaces of the surrounding tissues and then penetrate their walls by means of the power of "diapedesis"[1] and enter the lymphatic and blood capillaries; by these means they enter the general circulatory system, and thus the growth becomes generalized or disseminated.

But there is yet something more. The cancer also operates by means of products secreted by its cells which are diffused in the blood.

The action of these products approximates to those animal poisons to which the name of Toxins is given. These act by infecting the blood, little by little, but continuously.

Now the reason is clear why I stated at the outset that the supernatural cure of cancer necessitates two distinct acts: the one relating to the cells of the tumour, the other to the poisoned condition of the blood.

I do not ignore the fact that certain forms of cancer exist in which there is a natural tendency to the formation of scar tissue. This natural cure is, however, strictly localized, and has been observed only on a small area; it never extends

[1] By diapedesis we understand the power possessed by certain anatomical elements of piercing and passing through living cell walls.

through the mass of the growth, which meanwhile continues to grow steadily. It is interesting to consider what happens in these rare cases, because one is tempted to assume that this natural and very partial cure is similar in process to the supernatural cure, and that the mode is identical in the two cases.

In certain forms of cancer of the skin the course of events is very slow, and extends along the surface instead of penetrating deeply, and one has observed the following phenomenon: a superficial ulceration cicatrizing at one of its borders, whilst continuing to grow slowly at the remainder of its periphery. The formation of scar tissue usually confines itself to one point, but remains limited here, and this cicatricial tissue is always powerless to arrest the progress of the cancer.

This local healing is, then, far from being a complete cure, since it has an effect only within narrow limits; there is no action on the totality of the growth, nor on the blood infection. If scarring takes place at several points this is effected with extreme slowness, very different from the rapid disappearance of the growth seen in the two following cases: René Clément, with recurrent cancer of the cheek, and Catharine Lapeyre, with recurrent cancer of the tongue.

Some philosophic reflexions may be permitted here concerning the physiological pathology of cancer. When the cancer is cured in a supernatural manner, the mode of cure differs considerably; the cure of rodent ulcer, for instance,

differs much from that of a solid growth. When the malignant growth is ulcerating, the diseased surface is covered suddenly and wholly with a layer of healthy epidermal cells. The whole of the ulcer becomes a scar. This is what happened in the case of Catharine Lapeyre.

It is the more remarkable in that the essential vital property of cancerous cells is normally to destroy eventually the epidermal cells. Some mysterious force must, then, have taken away from the cancer its distinctive biological properties.

Can one possibly sustain the thesis that it is only a natural force when it has acted precisely against natural properties ? But this would be the destruction of nature by herself. A manifest contradiction. No, the force is a supernatural one.

The cure of a cancer that is not ulcerating shows us something more astonishing still, if I may dare to express it thus, for it is the disappearance of an existing living substance.

Clinically there is sometimes seen, though very rarely, the relatively rapid destruction of a cancer by mortification. In these cases the tumour becomes of a black colour, and is little by little eliminated in the pus flowing from it. This is the process of gangrene. In the supernatural cure there is nothing that suggests an absorption of the growth into the system. In the cancroid of the cheek of René Clément and the cancer of the tongue of Catharine Lapeyre we see that the tumour has been replaced by a solid scar.

A cancerous mass, formed of cells, can exceed

in weight 100 grammes; such, for example, is a cancer of the breast. As the cancerous cell has a diameter of fifteen to twenty thousandths of a millimetre, the number of cells is immense.

In a miraculous cure all these have disappeared. Where have they gone?

Can we say that they have been absorbed naturally by the blood? No, for when the cancerous cells enter the blood the death of the patient follows from cachexia and secondary growths.

But after the supernatural cure there is no such thing as generalization and secondary growths—the cure is absolute.

Is it possible that the reabsorption of the cells of the cancer actually takes place, but that these cells have been rendered harmless? But this is to acknowledge an effect contrary to natural law. The cure is supernatural—in short, a miracle.

Outside the action exercised by the cancerous cells locally, we know that the growth exercises an action on the whole organism by means of the cell products that emanate from it, which are diffused by the circulation. Thus the cancer becomes a source of poison to the whole body.

It is possible to obtain this cancer poison, and it is found to be a toxin which gives the reactions of that class of poisons called Ptomaines. These poisons act by entering the blood in small but continual doses. We can say, speaking generally, that these cancerous toxins are thus more dangerous than the most infectious poison.

Has the human body any means of getting rid of these toxins ?

Yes, but only under certain determinate conditions to which anatomy supplies the answer ; but we know that these conditions are not realized in the supernatural cures.

In order that general readers may grasp medical reasoning more clearly, I am here obliged to return again to physiology.

The elimination of poisons circulating in the blood takes place by the skin, but principally by the kidneys, which are the true filters of the blood.

This elimination can only take place slowly on account of the anatomical structure of the kidneys, where it is subject to circulatory conditions. The volume of the kidney is small—its capillaries measure from eight to fifteen thousandths of a millimetre in diameter.

For the purpose of argument we may say that the total capillary capacity of one kidney is about 100 cubic centimetres. That is to say, one kidney would be filled by receiving 100 grammes of liquid at a time, or 200 grammes for the two kidneys together. Consequently, in the normal state, the elimination of poisons circulating in the blood takes place rather slowly. Surgeons, of course, are fully acquainted with this, and in practice, when there is a necessity for what is called "lavage" of the blood, they know that this process will take some hours—sometimes even days.

If, then, the whole blood could be filtered

suddenly, the kidneys would receive at once twenty-four times more fluid than they are able to contain. This amount suddenly forced in would most certainly rupture the capillaries and the kidneys would be destroyed.

It is therefore impossible that natural forces could effect this instantaneous filtration. Moreover, there exist yet other impossibilities. The rapidity of the circulation of the blood is regulated by the beats of the heart, seventy-two pulsations a minute being the average. To pass suddenly through the kidneys the 5 litres contained in the body, the heart would have to beat many times more rapidly. This would demand an amount of mechanical work it is incapable of performing, for we know that death is not far off when the pulsations exceed 160 to 180 a minute.

Again, if this amount of blood was suddenly extracted from the brain, death would occur immediately from cerebral anæmia.

It will be clear to all, therefore, that natural forces are powerless to eliminate the toxins instantaneously, taking into account the normal physiological powers of the human organism—yet this sudden disappearance is what actually occurs in supernatural cures.

Let us inquire further what happens from the point of view of bio-chemistry, when the whole mass of cancerous tumour disappears. The cancer is a living animal tissue, hence it is a nitrogenous substance. When we make an analysis of a nitrogenous substance we decompose it into gases, which escape in the air, and a solid mineral

remainder, which is left in the retort, and is found in the form of ash.

In the supernatural disappearance we find nothing, neither gas nor mineral ash; the disappearance is absolute.

If we wish to maintain the thesis that this disappearance is made under the influence of natural forces, we are obliged to recognize that this destruction of proteid material can only take place in the manner above indicated, by reduction into gas and mineral salts. We must look somewhere else, then, to find what has become of the constituent elements at the moment of their disappearance. It might be maintained, perhaps, that the gases escape our notice because they are invisible. This in itself is not impossible, but what has happened to the visible portion? Of this there is no trace.

We cannot imagine that they have passed into the blood, for their presence would most certainly cause a certain amount of physiological embarrassment; but there is no sign of any trouble arising from the blood.

If these mineral salts are not found at the spot where the tumour formerly existed, and if they cannot have been absorbed by the blood, what has become of them? This is where the supernatural manifests itself, since no satisfactory explanation can be found to account for the instantaneous disappearance of the cancer cells and the cancer toxins.

Are we not forced to conclude that their total annihilation has been effected? Thus, in the

supernatural cure of cancer, we are confronted with a phenomenon the reverse of that which occurs in the sudden cures of fractures as seen in the cases of De Rudder and Margaret Verzier. To sum up: on the one hand matter which formerly did not exist in the body suddenly appears; and on the other morbid pre-existing matter totally disappears.

§

Cure of Wounds and Formation of Scars.

In a great number of supernatural cures a noteworthy fact is the persistence of marked scarring. If one may be permitted to say such a thing, it is as if God wished to leave very definite evidence of the disease that has been cured.

The cicatrization of wounds and the re-formation of tissues is effected by a process which appears to be absolutely identical with that seen normally in medical work.

The consolidation of De Rudder's fracture takes place by true callus, ulcers are cured by cicatricial tissue and not by true skin (Duret), the fistulæ in the cases of osseous caries are replaced by a fibrous scar, depressed and adherent. The same occurs in the cure of lupus or in rodent ulcer, as in the case of René Clément. The ulceration in the one case, the rodent ulcer of the other, are replaced by scar tissue, having all the morphological properties of normal scar tissue. What is, however, particularly remarkable here is the rapid evolution of the connective-tissue cells which form the scar, and this does not conform to their normal evolution.

The connective-tissue cells are derived the one from the other, and are nourished by material furnished to them by the blood. The blood derives these necessary substances on the one hand from the lungs, i.e. the respiratory gases ; on the other, the proteids and mineral salts, from the digestive tract, where they have been elaborated from the food.

The marvellous discoveries of Pasteur have taught us that the digestive ferments are formed in the glands of the stomach and of the intestine under the influence of bacteria, and the majority of the digestive acts occur in their presence, and also, as in the case of all fermentations, under the influence of active principles produced by these bacteria.

It is absolutely essential that these bacteria shall have the requisite time to reproduce and exert their action in the glands. Consequently, each cell formed, needs time for these necessary vital operations.

Here is a résumé of the series of operations needed for the work of cellular generation. It is analogous to that drawn up for the production of callus.

I. The introduction of alimentary material into the digestive tract.

II. Action of the digestive juices on the food.

III. The elimination of assimilable principles.

IV. Absorption of these principles by the blood.

V. Transportation by the blood to the cells.

VI. Assimilation of these principles by the cells.

Our opponents have the awkward task of postulating a force which shall perform instantaneously all these complicated chemical and biological processes. Clinical observation shows us that in the cicatrization of surface wounds the scar tissue is formed at the periphery under the form of a thin collar of epidermis which spreads little by little towards the centre. It is but rarely that it is seen being produced in the centre of the wound.

I have explained why this process is so slow. In the supernatural cure we know that it is instantaneous. If we cannot have recourse to the hypothesis of creation of all the cells, we must admit that a mysterious force has suppressed the time necessary to accomplish all these functions, and, comparing with the natural process of cicatrization, must admit that this Force has made use of some of the existing cells, those probably situated at the periphery. We may take it that this Force has been able to stimulate the cells which existed at the periphery, and has made them spread towards the centre with a supernatural rapidity.

We cannot always certify to a cure *ad integrum* in all lesions. Pierre De Rudder had lost through suppuration the extensor tendon to the great toe. This tendon was not renewed. Apparently the mysterious Force that cured the fracture, the main lesion, wished to leave some tangible evidence of the trouble that had been cured.

Dr. Boissaric has very appositely remarked

that these remaining evidences are not to be regretted. Apropos of the visible callus in the case of Pierre De Rudder, he said: "This permanently remains an irrefutable sign of the ill that has disappeared. For if the leg at the autopsy had shown no sign of the fracture, those who denied the miraculous would most certainly deny the former existence of this fracture."

The same happened with Mme Rouchel. The large lesion, the perforation of the cheek and soft palate were cured, but a small ulceration remained on the internal aspect of the upper lip. Mme Rouchel knew it and was happy about it, for, as she said, "It is a proof of the terrible trouble from which I have been cured."

The probability is that in internal disease an analogous process takes place instantaneously. The pulmonary cavities cicatrize up and the tubercular bacilli are destroyed. This is precisely what happens in the natural cure of pulmonary consumption, but the miraculous cure is achieved in a different manner from the healing that follows definite biological laws. The supernatural clothes itself in a very different aspect from the natural.

We must remark that the cured pulmonary cavities usually leave traces of their past existence. A complete return to normal respiration does not always occur; this would constitute evidence of the re-formation of the normal pulmonary alveoli and a stethoscopic proof of the *restitutio ad integrum*. Usually at the site of the cavities there remains over a limited area a feeble air

entry, but unaccompanied by râles. This corresponds to the fibrous cicatrix of the lung, which we find post mortem in the case of ordinary healed phthisis. It is a proof, moreover, that a lesion really did exist. It corresponds to the visible cutaneous or osseous scar.

Radiography demonstrates to us the cure and the calcareous transformation that occurs in these pulmonary cavities, just as we see it in our ordinary clinical experience. It is both the sign manual of the disease and its cure.

§

The Cure of Varicose Veins.

The pathological anatomy of varicose veins is perfectly known. The tissue alterations revealed by microscopical study demonstrate why these lesions never clear up when once they have attained a certain degree of gravity. These alterations affect the walls, the valves, and the length of the veins.

A short explanation will enable us to appreciate the nature and the gravity of these extreme tissue changes. We shall then realize why the medical man never obtains an absolute cure, a *restitutio ad integrum* of the large veins even after the most careful treatment.

But it is an absolute cure that I testify to in the case which I report, and of which I was myself the witness. The reabsorption of inflammatory products is common in surgery, but that it should be complete, very definite conditions are a *sine qua non*. The products to be absorbed must not be too old, there must be a certain

relation between the duration of the trouble and the extent of the lesion.

If, then, diseased products of considerable duration disappear instantaneously, we can say that a physiological phenomenon has happened which is contrary to natural law.

The purpose of the valves that exist in the veins is to furnish a support to the column of blood, and in cases of varicosity these are atrophied. They are unable to fall back and to close the lumen of the diseased vein ; often even the valves themselves are destroyed. As a result, the circulation is deprived of the physiological aid which they should normally furnish against the force of gravity, and there follows a blood stasis in the lower limbs, with resulting damage to the nutrition of the skin, of which I shall speak later.

Embryology shows us that the valves are formed by the budding of the internal wall of the veins and their development takes places *pari passu* with that of the veins.

In a case of cured varicose veins, when the circulation of the blood is fully re-established, we assume that the valves have reappeared, although the development of the veins has long ceased, and that these valves have been completely reproduced despite physiological laws. Large varicose veins show a grave pathological change, namely an extraordinary and unaccountable increase in their length. As a result they show under the skin a number of serpentine flexures, forming sometimes veritable tumours. When the surgeon

removes these, if they are unravelled, he sees that their length is very considerably greater than that of the incision that he has made.

I have seen this elongation many times in the operations I have performed for the radical cure of varicose veins.

Now, in the case which I report, the veins lost all their pathological flexures and assumed a normal form. For this return to their normal length, in the case of my patient, a series of very complicated changes were necessary : disappearance of the endothelial cells forming the internal tunic of the veins, disappearance also of the smooth muscular fibres of pathological formation, in the thickness of the middle coat, and reabsorption of the cellular tissue which retained the rigidity of the varicose walls. It is absolutely impossible to furnish the slightest explanation of this phenomenon. The total disappearance of the segment of a vessel is never seen in medicine, and is an occurrence impossible to realize experimentally.

Here, then, is an absolutely inexplicable fact.

The pathological changes in the walls of the veins produce in addition, in various places, ampullary dilatations. At the summit of these dilatations the wall of the vein becomes of extreme thinness. This thinness may cause spontaneous rupture of the veins and grave hæmorrhages.

It would be an error to think that we never see large varices cured, although such cures are only partial, limited to short segments of the

vein, and consequent on phlebitis, a grave inflammation of the veins.

The pathological process is as follows: the patient has considerable pain in a certain limited area of the varicose vein. The skin reddens at this spot, the veins are swollen, they feel hard on palpation, and it is easy to recognize the presence of a clot within the vein. At the end of several weeks, when the inflammation has subsided, it is evident that the veins have diminished in volume and contain a clot. This clot becomes organized, and with the progress of time shows itself as a firm and painless cord, the vein remains practically obliterated and the blood ceases to circulate.

In this the natural mode of cure there is no comparison with the supernatural; this takes place instantaneously, without fever, without phlebitis, and without the circulation of the blood being interrupted.

Clearly, there is no comparison between the natural and the supernatural termination since in the one case there is a *restitutio ad integrum*, in the other a temporary or permanent obliteration of the diseased vein.

The skin presents profound changes, which explain the ulcers. The microscope reveals histological lesions of a chronic nature; little collections of pus are formed which open, coalesce, and form ulcerous wounds, the resistance of which to treatment are the despair of the patient. Medical treatment can effect something at the beginning of the ulceration, but when this is of old standing and the veins are voluminous the

outlook is practically hopeless. These ulcers are regarded by medical men as chronic, and they usually remain so while the veins that caused them remain uncured. In the case of my patient, all the ulcers were cured instantaneously, and they did not recur.

With regard to the treatment of varicose veins, outside operation, it is practically limited to the application of pressure by means of elastic bandages. By these means there is a certain decrease in size of the veins whilst the pressure is maintained, but there is no return to the pre-varicose condition. This treatment has also not the slightest effect in reducing the increase in length, once it has been acquired. Not only, in the case of my patient, did the veins again acquire their normal length, but the perfect regularity of the blood circulation made one believe that the valves had been perfectly reconstituted.

§

Action of the Nervous System.

We can now inquire what is the organic principle of the human organism used by this mysterious Force to cause an evolution of the tissues in a manner so differing from the normal.

"It is difficult," said Duret,[1] "not to admit some impulsive and predominant action of the nervous system, moved by a superior invisible force. Even if we admit a curative action on the organism, exercised through the intermediation

[1] Duret: *Considération sur les guérisons de Lourdes.* Lille, 1907.

of the nervous system, the miraculous character of the cures is not lessened. For there does not exist any natural agent capable of producing such results."

Duret explains how all these phenomena are dependent upon the central nervous system, which is the great regulator of life. "Illness," he said, "is not a mysterious thing of which we cannot have exact conceptions, even if these be incomplete. Claude Bernard said 'that illness is a deviation from the physiological laws of the organism.' Now, the great regulator of these laws is the central and peripheral nervous system, and more particularly the nerves which preside over the nutrition of the tissues and organs (the nerves, vasomotor and trophic). Natural history shows us that the sun has an action inciting the growth of plants. The nervous system plays a similar rôle in the life and development of our tissues and organs. If its function is hindered or paralysed by illness, the processes of necessary repair are only effected very imperfectly; but if they receive a mysterious excitation, then their sluggish action can be stimulated. We can then say that the cure operates under the intensive action of natural forces put into operation by Divine Power."

It is logical to affirm with truth that the force that produces the supernatural cures, puts into action with an intensity and miraculous suddenness, the curative power of the organism, that is to say, of the nervous centres of the nerves and the tissues.

CHAPTER III

THE TIME FACTOR

COMPARATIVELY few people are aware of the rigorous proofs exacted by the Church before she will acknowledge a supernatural cure. It is sometimes imagined that *absolute* instantaneity is one of these conditions, but this is an error which should be dissipated. The different kinds of cures narrated in the preceding chapter have this in common, that the transformations or modifications which constitute the cure are accomplished either quickly or instantaneously; although the same changes would naturally require a considerable space of time. Without inquiring if instantaneity is a requisite condition for miracles of the first and second class, it must be said that this condition is a requisite for miracles of the third class, to which belong nearly all the supernatural cures.

Of course, it does not follow that there ought to be a mathematical and absolute instantaneity, so short that it cannot be measured. Pope Benedict XIV formulated in an admirable manner the rules observed for the examination of miracles presented for the process of canonization. He distinguishes an absolute instantaneity and moral instantaneity. This last is sufficient. In the medical miracle it is necessary to demonstrate that the cure has been obtained in a space of time manifestly too short for it to have been effected solely by the forces of nature.

If it is not presumptuous to give another form to the words of Benedict XIV, I should

venture to say that the "*time factor* has been absent." Moreover, it is a general characteristic required for the miracles admitted or recognized by the Church.

In the process of Beatification the customary formula of the question submitted to the Tribunal for the approbation or acknowledgment of miracles is as follows: "*an constet de instantanea et perfecta curatione. . . .*" *Instantanea* is suppression of the time factor—absence of convalescence; *perfecta*, absence of relapse and permanence of the cure.

In the examples which constitute the basis of this work we find these two classes of instantaneity clearly demonstrated.

The instantaneity was absolute and practically mathematically so in the cure of De Rudder's fracture (see page 119); in the case of the intestinal fistula, with tuberculous peritonitis, of Dr. X. (page 165); in the cure of the Pott's disease of Gabrielle Durand (page 140), whom I attended; in the cure of the pulmonary tuberculosis of Amélie Hébert (page 190); in the cure of varicose veins (page 113).

Absolute instantaneity has been proved at Lourdes in many other cases; moreover, a remarkable thing, and one worthy of special attention, is that in these instantaneous cures of what we might call the absolute kind, the patients have suffered that acute pain at the moment of cure which I referred to when discussing the physiology of the miraculous.

In the following cases we cannot prove absolute

instantaneity, but the *Time Factor* has manifestly been very definitely shortened in the following cases: Fracture of thigh of Margaret Verzier (page 131), the ulcer of Joachine Dehant (page 146), of the six intestinal perforations of Marie Borel (page 175), of the recurrent cancer of the cheek of René Clément (page 180), and also in the case of the recurrent cancer of the tongue of Catharine Lapeyre (page 186). None of these patients suffered the violent pain referred to above.

This fact is one I can vouch for, but I am unable to furnish any physiological explanation. From a medical man's point of view absolute instantaneity is not necessary; it suffices for him if the time factor is markedly deficient. The reader will appreciate this point if he will reflect on the complexity of the physiological phenomena in the cures of the different diseases already cited; on the inevitable slowness of the exchanges between the anatomical elements, exchanges necessary for the re-formation of tissues, and it will be seen that the suppression of the time factor is certain evidence of a supernatural phenomenon. This is one of the most striking incidents of the cure, and one of the easiest to prove.

§

Fractures.

The two cases of fracture—the one of the femur without a wound (case of M. Verzier, page 131); the other a fracture of the tibia with a wound (case of De Rudder, page 119)—show us clearly the complete absence of the time factor, during

the process of healing, and also that this condition of things is quite contrary to nature.

All the physiological phenomena that occur during the formation of callus demonstrate quite clearly that the processes of nature are very complex; that they exact a considerable time for their completion and the effecting of a cure.

In the chapter on physiology it was seen that the lime salts that are deposited in the callus have in the first place to be elaborated in the intestine, then absorbed by the blood and carried to the capillaries of the callus. Now, the quantity of phosphate of lime circulating in the blood is extremely small. Physiology shows us how small is the amount of pure phosphate that passes at one time by the capillaries to the thin layer of cartilage of the callus in process of ossification—perhaps a fraction of a milligramme a minute. It is also necessary to add to this (1) the time necessary for the generation of the cartilaginous cells, which proceed the one from the other by way of segmentation; (2) the time necessary for the penetration by endosmosis of the other nutritive principles from the blood necessary for cell nutrition; (3) the time necessary for the deposit of the phosphatic salts in the trabeculæ around these cartilaginous cells.

All these physiological processes can only be executed slowly; that is why the complete cure of a simple fracture of the leg takes forty to fifty days, and an old fracture complicated with a suppurating wound demands four to eight months. Consequently, when we see all these phenomena

take place in an extremely short space of time, it is obvious that this time factor has been suppressed. It is clear evidence of the supernatural.

Now we have seen above, in the case of De Rudder, that the quantity of phosphate deposited instantaneously must have been enormous, no less than 5 grammes almost at once. The comparatively small space of time that De Rudder spent at Oostacker was most certainly not sufficient to form such callus as to permit him to walk so soon and to run after the carriage.

Obviously the time factor was absent, and such a cure cannot be equated with natural physiological processes.

§

Tuberculosis.

The suppression of the time factor appears in a manner equally striking in both pulmonary and osseous tuberculosis.

Since the discovery of the bacillus of tuberculosis by Koch we know the havoc it causes. By its presence, and more by the toxins which the bacilli secrete, the tubercle destroys the surrounding tissues and infects the system at large. The cure finally takes place only by a systematic change, when the blood acquires the powers by means of its white corpuscles of destroying the bacilli, and by its serum of annulling the toxins.

When the bacillus is destroyed, and the tuberculous suppuration whether of lung or bone ceases, then only does cicatrization commence. Embryonic cells appear, and little by little are

transformed into cicatricial fibrous tissue and cure follows.

To arrive at this result it is necessary to place the patient in certain definite hygienic conditions, to respire particularly pure air, and to be well fed ; in this manner the bacillus is attacked chemically and vitally by means of the blood. But these means act only indirectly, consequently the treatment of tuberculosis is a slow affair which extends to years.

It is, then, only a supernatural intervention that can suppress this time factor.

§

Wounds.

We know well the microscopic mechanism that occurs in the cicatrization of wounds. At the edges granulating tissue composed of capillary vessels are formed, supported by a collection of developing cells which presently become connective tissue cells. As it is the blood which carries to the cells the mineral principles and gases which nourish them, it is obvious that these vital necessaries cannot reach them save with a rapidity which is dependent upon the circulation.

To this must be added the time necessary for the nutritive changes between the blood and the cells which take place by endosmosis.

All this work in the natural state is lengthy. It requires for the necessary anatomical changes a lapse of time of about six to eight days, for a large wound a delay proportionate to a certain extent with its surface. It is this inevitable factor, " the time," which is suppressed in the

supernatural cures. The anatomical elements immediately reach their final stage, because their transformation is instantaneous. The supernatural is manifested in this work being achieved either instantaneously or in a very short time.

With regard to the formation of cicatrices, there is an interesting point to which it is well to draw attention. This is the extraordinary strength acquired immediately by the thinnest scar tissues.

Clinically we are well aware of the extreme thinness of the new epidermis formed on young scars. In ulcers of the leg, for example, the surgeons are obliged to prohibit the patient getting about too soon, otherwise the scar breaks down and the ulcer reappears. In the case of Joachine Dehant nothing of the kind happened; despite the enormous surface of the recent scar, the young epidermis of recent origin was immediately so strong that the patient could walk and undertake a fatiguing journey by rail without the wound reopening. The permanency of this scar was certified by Dr. Manrique from time to time for fifteen years after the cure.

This resistance in the scar is against our experience, and must be considered as a phenomenon opposed to all our clinical evidence.

§

Cancer.

It seems difficult to talk about the absence of the time factor in the disappearance of cancer, as has been done in the case of other diseases, even when this is very definite. The reason

being that the notion of the time factor comes before us when a cure is made with greater rapidity than is the case in a natural cure.

But medical science has never known a cancer to be cured or disappear as the result of some natural internal remedy. No known remedy seems capable of modifying the biological properties of the cancerous cell, the complete natural healing of cancer has never been seen. Practically it can be said that destruction only takes place by way of gangrene or surgical intervention.

We are not, then, able to compare the instantaneous cure of the cancer of René Clément with the time necessary to cure a cancer medically since the medical cure is practically non-existent.

§

Varicose Veins.

To some extent the difficulty that we met with concerning the cure of cancer again confronts us here. In practice we never see a *restitutio ad integrum* " with regard to the whole of the varicose veins enlarged, as I stated when I discussed the case of M. X. (page 113), which came under my direct observation.

Medically we see a localized cure following phlebitis, but in this process weeks and even months elapse before the circulation is re-established. We never see the whole vein restored to its normal length, nor the valves re-formed.

The two modes of cure are not to be compared; we see in the supernatural that the

excess in length of the veins has disappeared instantaneously, but we are unable to compare this with a medical cure, since such a similarity is never attained. This is one of the interesting peculiarities of the supernatural.

CHAPTER IV

THE EVIDENCE

Proof of the Reality of the Lesion.

THE supernatural cure is nearly always effected in an unexpected manner, hence the extreme importance of the scientific control of all the witnesses, so that it may be possible to appraise the medical value of their depositions.

I do not wish to conceal the difficulties we meet when we try to establish the reality and the nature of the lesion with that exactitude which we are accustomed to use in our medical observations. The best of all evidence is good medical observation taken systematically, but experience shows us that such observation is very rarely obtained. The patients are nearly always chronic cases, who pass from one doctor to another, and only rarely have the doctors kept such precise notes for accurate details to be available at the time the patients set out for Lourdes. Usually the account is only one of a few lines in which the malady is very briefly indicated and the patient pronounced incurable.

Some cases are more perplexing, such as those in which the doctor either declines to give a certificate or gives one purposely incomplete.

§

Value of Non-medical Witnesses.

When it is absolutely impossible to procure medical evidence, we are able, using certain precautions, to avail ourselves of the evidence of trustworthy people who have had charge of the

patients, with the express condition of submitting such evidence to a searching examination in order to draw from it what is of clinical value. To say, as certain impressionable people commonly do, that the wound was horrible, that the patient suffered terribly, that the bandages were soaked with a flood of matter, etc., does not suffice. Care is more necessary concerning the evidence of good, charitable souls who are often disposed to see exactly what the patient desires. Medical men know by long experience with what richness of imagination certain women will describe a wound of which they have really scarcely caught a glimpse. It may be, however, that the description given by a non-medical witness, immediately before a rapid cure, testifies that the wound was one of considerable extent and deepness. In a word, that the loss of substance was such that a natural cure would require a much longer period than was actually involved.

Let us take, for example, a fistula, tracking towards the bone. We know how, by the progressive lessening of its calibre and the shortening of the track, it finally comes about that the fistula is closed. It is important that witnesses should be able to tell us what was the length of the fistula on the occasion of the last examination by a doctor, what was the precise date, and what was the apparent size of the orifice. Perhaps they are able to show that there has been no change between the time of the last medical examination and the precise moment of the cure. It might be that, at the precise moment of setting

out to Lourdes the fistula was well on the way to cure, and so the natural process of healing coincided with the pilgrimage or invocation of some holy person.

It must be noted that we do not ask from these witnesses technical descriptions of the lesions—they only to testify to things which anyone with average intelligence could perceive.[1]

Here are some examples from famous miracles in which the proved testimony of the last persons who saw the patients can be considered, in default of regular medical evidence, quite satisfactory. I wish to speak of the cases of Pierre De Rudder and Mme Rouchel.

De Rudder, whose cure I shall study later on, had for eight years a suppurating compound fracture of the leg with extreme and abnormal mobility. The day before the cure, three people, of whom two were men and one a woman, saw the wound and testified that it was unchanged, and just as they had known it for a long time. It was also possible to verify very easily that the leg was capable of abnormal movement of flexion and rotation. During the journey to the Grotto of Oostacker, all the accompanying travellers noticed the abnormal mobility of the leg, which could be turned with the heel forward and the toes behind. All the witnesses deposed to the same facts and signed their depositions. The

[1] Dr. Tennesson, of the St. Louis Hospital of Paris, said very aptly concerning the value of non-medical evidence: "It is not necessary to be a tailor to see that a coat has holes in it." Cited by Boissarie, *Œuvre de Lourdes*.

symptoms are almost as well described as in a piece of medical evidence, and their authenticity is certain. Only four hours later the fracture was consolidated, and the patient was walking.

We are perfectly justified in saying that this evidence equals medical evidence in value, and that the bone lesion certainly existed but a short time before perfect consolidation.

The same reasoning can be applied to the cure of Mme Rouchel.

The certificate of Dr. Ernst is dated but two days before the cure. During the journey from Metz to Lourdes the perforation of the cheek permitted the passage of the little finger, allowed food to ooze out, and the patient was obliged to close it with a small plug of wool. At midday witnesses saw the perforation as large as ever, but at five o'clock in the evening it was quite cicatrized. When Mme Rouchel returned to Metz there was a unique discussion as to whether the trouble had been lupus or not, but no one denied the fact of the perforation. Whichever was the correct diagnosis, it could be affirmed without fear that a perforation of that size could not be cured naturally in a short space of time, amounting at most to five hours. Again, as in the case of De Rudder, the evidence of persons who saw Mme Rouchel during the journey, and of those who saw her bathe at the Grotto at Lourdes, is quite sufficient to prove the existence of the lesion at the moment of cure.

It is the same in the case of Joachine Dehant, with the ulcer of the leg, of which I shall speak

later; all who were in the carriage with her could see the wound. They also complained of the offensive smell which came from the leg.

That is all that one asks of such witnesses when they are interrogated; they are simply requested to state what they have seen and heard.

All these eye-witnesses were of good faith and worthy of credence. It follows, then, that the testimony of the laity in certain determinate conditions has very definite value, when their evidence is concordant with observations, even incomplete, made by medical men. In evidence such as this is clearly found the conditions of veracity which MM. Langlois and Seignobos indicate as sufficient: "A concordance between several independent observers contained in different documents, and acting under different conditions."[1]

This is what Dr. Deschamps,[2] from whom I borrow this quotation, puts in a very clear light, in his remarkable work on the cure of Pierre De Rudder.

[1] Langlois and Seignobos: *Introduction aux études historiques.* Paris: Hachette, 1901.

[2] Deschamps: *Le Cas de Pierre De Rudder.* Paris: Lecoffre, 1913.

CHAPTER V

ACTION OF INTERMEDIARY AGENTS

Natural Agents.

TO explain the supernatural cures of Lourdes sceptics have recourse to the intervention of natural agents: the water of the piscina, suggestion, "the faith which cures," or unknown natural forces.

For a long time now it has been observed that in many of the cures there is no intervening agent. In a number of the cases which I have brought forward there is clearly no intervention by any natural agent. Pierre De Rudder's suppurating fracture was cured in Belgium; the dressing being the same as that which he used at home. Margaret Verzier, with fracture of the femur, was lying in the asylum of La Teppe department of the Drôme, and had no splinting. Clément René, with recurrent cancer of the cheek, was cured at home. He did not even wish to go to Lourdes. Catharine Lapeyre was cured at Toulouse of recurrent cancer of the tongue after several rinsings of the mouth. She could not go to Lourdes as there was no room in the pilgrimage train.

Other sick people have been cured after a brief washing with water from the piscina. The contact of the water was far too short to produce any effect from its temperature. Marie Borel had six pyo-stercoral fistulæ cured at her hotel, after two short washings. I am mentioning only the cases studied in this book; there are, of course, many others.

As there are some cases in which the sudden cure took place either in the piscina or after the bath during the procession of the Blessed Sacrament, and have been attributed to the action of the water, I thought it would be useful to study the chemical and physical properties of the water in order to show that it can have no therapeutic action.

§

Lourdes Water.

The idea that the water at Lourdes can alone act as the agent of the supernatural in the cures has now been generally abandoned. What is there in this water that could have any active effect? There are only three things possible: the chemical composition, the temperature, and radio-activity. Let us see what can be said about these properties.

§

Chemical Composition.

It is not a medicinal water, as is that of the mineral springs which we use so largely in therapeutics. It is a water chemically pure, as are the waters from the mountains, and it contains only a slight amount of mineral matter. It has been analysed by Professor Filhol, of the Faculty of Science of Toulouse, in 1858. Here is the analysis of this scientist:

Temperature, 12°–14° C.
In 1,000 grammes of water there are:

Carbonic acid	8 c.c.
Oxygen	5 „

Nitrogen	17 c.c.
Ammonia	Minute traces
Carbonate of lime	0·096 gr.
Carbonate of magnesium	0·012 gr.
Carbonate of iron	Traces
Carbonate of soda	Traces
Carbonate of potassium	Traces
Silicate of sodium	0·018 gr.
Silicate of potassium	Traces
Sulphate of sodium and potassium	Traces
Iodine	Traces
Total	0·134 gr.

The conclusion arrived at from this analysis, says M. Filhol in his report, is that the water from the Grotto at Lourdes is such as is usually met with in mountainous regions rich in limestone; it may be considered a good drinkable water. The water contains no substance capable of producing any marked therapeutic effect. The result of this analysis demonstrates the fact that Lourdes water does not contain active chemical principles capable of producing any medicinal effect.

Mineral waters are largely used in medicine, but their employment is subordinate to and consequent on their chemical composition, these waters acting on specified maladies.

What is surprising at Lourdes is that this water, having no special mineral contents, acts on the most diverse maladies: on wounds and ulcers, tuberculous disease in all its forms, intestinal perforations, cancer, etc.

Can the thesis be sustained that this water

possesses *in toto* the properties of the known medicinal waters, without it being possible to discover them ?

§

Radio-activity.

The discovery of Radium by Curie has perhaps revealed to us the most powerful force in nature. It plays an important part in the therapeutic effects of certain mineral waters, and it is fair to ask, May not the results at Lourdes be produced by this agency ? What I mean will be more clearly understood by recalling in a few words what this extraordinary force of radio-activity is.

Radium constantly emits rays which have the property of penetrating most substances. The emission of these rays constitutes what is termed the phenomenon of disintegration.

The first product of the disintegration of radium is a gas to which chemists have given the name of Emanation ; this gas possesses the property of radio-activity.

Emanation is produced in a constant and continuous manner by Radium, but the duration of emanation itself is short and is lost rapidly. Emanation has the power of rendering radio-active, bodies with which it comes in contact ; thus when a spring of subterranean water comes in contact with soil that is radio-active, then the water also becomes radio-active. But this property scarcely exists except at the source, and it is very quickly lost. Water that is radio-active cannot be transported.

The necessity for considering the question of

some radio-active force in Lourdes water was appreciated by Mgr Schoepfer, Bishop of Tarbes and Lourdes. He entrusted the inquiry into this question to M. Nodon, who had already made fruitful researches into the composition of many mineral springs in France. The following is a copy of the report of this scientist :

Inquiry into the Radio-activity of the Water from the Grotto of Lourdes

These researches were effected at Lourdes on the 27th and 28th of July, 1915. The first sample of the water was taken from the source at the Grotto at Lourdes on the 27th of July, 1915, at 9 o'clock in the morning. The analysis was made at 10 a.m.

The water was preserved in a flask, firmly closed with a new cork. The precaution was taken of filling the flask entirely so as to avoid all possible escape of the radio-active gases.

The principal facts concerning the state of the atmosphere when the radio-activity of the water was determined were as follows :

Atmospheric pressure : 735 millimetres of mercury.

Temperature : 22° C.

Relative hygrometric state : 75.

The stormy state of the atmosphere and the lowness of the atmospheric pressure were conditions particularly favourable for the manifestation of radio-activity in the water taken at the source.

The electrometer was charged negatively in order to observe the dominant positive radio-activity, most frequently met with in the thermal springs of the Pyrenees.

The spontaneous loss registered on the electrometer was 1 division in 55 seconds.

Five grammes of the water of the spring were weighed in a small glass cup having 20 square centimetres of free surface.

The loss registered by the electrometer was of 1 division in 55 seconds; that is to say, its loss was equal to the spontaneous loss.

One grain of black oxide of Uranium placed at the bottom of a small glass cup of 5 square centimetres of surface, caused a deflection of the aluminium leaf of 10 divisions in 40 seconds, that is of 1 division in 4 seconds.

The spontaneous loss was, then, in the ratio of 1/10 of that produced by 1 grain of the oxide of Uranium, that is to say that the measurements were taken under conditions of satisfactory precision.

The conclusion of this first experiment was to prove that the water from the Grotto at Lourdes possessed no radio-activity at all.

Three other similar examinations of the water were made and gave practically the same result.

The second was made on the afternoon of the 27th of July, and the third on the following day at a little after 9 a.m.

The results obtained in the second and third examinations were practically identical with that of the first. (For details see original work, pages 86 and 87.)

Conclusion of Report.

We are able to conclude, from the examinations made at Lourdes on the 27th and 28th of July, 1915, that the water from the Grotto of Lourdes does not present any appreciable radio-activity, or, in other words, it is totally devoid of any radio-active matter.

A. Nodon, D.Sc.
(*Officer of Public Instruction*).

Lourdes, *July* 28, 1915.

Radio-activity must therefore be eliminated from any list of intervening agents. Even if in the future more perfect instruments should permit the discovery of appreciable traces, yet for clinical reasons, such a force would necessarily be without therapeutic effect in the supernatural cures of Lourdes.

The therapeutic action of the mineral waters which we use in our medical work is always very slow. It is necessary for the bath to be prolonged to relieve pain or to have any effect on the formation of cicatricial tissue. In some localities, even, the patients are kept for entire days in the waters close to their source.

At Lourdes, on the contrary, the immersion does not often exceed a couple of minutes. It is sometimes even less than this, as occurred with Dr. La Néele's patient, with pulmonary tuberculosis of the third degree.

But there is something yet more remarkable. I explained in the chapter on physiology that the radio-activity of water is soon lost, and cannot be preserved in water that has been transported. But it was with this water, transported without any precaution and many days old, that the linen was soaked which was applied to the rodent ulcer of René Clément ; similarly, the water used as a mouth-wash in the case of Catharine Lapeyre, cured at Toulouse of recurrent cancer of the tongue. Such evidence makes it clear that radio-activity must not be credited with the cures of Lourdes.

It is useless to suppose that the water may have

some effect on cancer. Epithelial cancer, with which René Clément was afflicted, is only influenced by the pure salts of Radium, and only then after they have been applied for a considerable time, with long intervals of rest between the applications.

Water alone charged with radio-activity would have no effect whatever. Radio-activity has never had any curative action on tuberculosis, yet the gravest forms of this disease are cured at Lourdes.

It has been contended that radio-activity acts on some wounds by quickening the formation of scar tissue, as do some ointments and other therapeutic agencies which we make use of in surgery; but, then, cicatrization has never been practically instantaneous, as was the case with Joachine Dehant, whose ulcer measured 32 centimetres in length.

To discuss at more length this question of radio-activity is unnecessary, the baths are too short for any action to take place, and as the slight amount of radio-activity at the source is lost very quickly, bandages soaked with water contain practically none, nor do the lotions which remain but for a moment in contact with the diseased part.

§

Temperature.

The water of Lourdes is cold, 12° to 14° C.

Professor Duret has discussed this question of the influence of the temperature in a most thorough and satisfactory manner, and I take the

liberty of reproducing exactly what he has written on the subject [1]:

When there is a discussion about a water without medical action, of a water absolutely pure, as medical men we cannot neglect the powerful action of cold water. We employ cold water in cases of hyperpyrexia (typhoid fever, pneumonia, etc.), and the effects are marked and efficacious.

The method generally employed differs from that used at Lourdes, in that we take into account the state of fever of the patient and lower the temperature of the bath accordingly.

At Lourdes it is an immersion of some minutes at the temperature at the source of the spring. The patients who are put into the baths are not people in robust health, but enfeebled and exhausted. In such conditions we have not the right to say that immersion in cold water is of small importance and without therapeutic or other effect.

Gargam was immersed once in the piscina. At the close of his bath he was in a fainting condition which lasted almost two hours. During the procession of the Blessed Sacrament he was suddenly cured, the trophic ulcers on the feet were instantly cicatrized.

A conscientious mind would not neglect to take into account the energetic modifying action of the cold bath taken two hours previously. It is not less true that the instantaneous disappearance of the ulcers and the rapid return to health, whatever may have been the cause of the paralysis, are facts differing radically from those that we see in medicine.

[1] Duret: *Quelques considérations sur les guérisons miraculeuses de Lourdes.* Lille: Imprimerie Morel, 1907.

It is the same with a number of cases of Pott's disease, of hip disease with or without suppuration which have been immersed in the piscines.

The action of the cold water cannot be excluded, at least as regards the explanation of the disappearance of contractures which affected the lower limbs.

Muscular contraction is sometimes the cause of shortening and of lameness. Without doubt these can be caused by organic affections, but many maladies are complicated with neuro-muscular troubles. The cicatrization of wounds, the disappearance of caries, if these take place suddenly, cannot be explained in the present state of science by the action of cold water.

We have seen, when we discussed the influence of the central and peripheral nervous systems, that the excitation of this system can increase the nutritional changes and hasten the evolution of cells. But all this necessary vital work needs that factor "Time." Now, in these supernatural cures it is this necessary factor which is suppressed. Consequently, we do not hesitate to say with Duret: "If there are supernatural cures, in many of the cases we cannot neglect the action caused by the cold immersion. This action is known to be powerful and is able to cause a general reaction. But it must be added, under penalty of concealing in bad faith one side of the problem, that from what we know this action of cold water has ordinarily contrary effects when we see it applied in cases similar to those at Lourdes. In clinical medicine these immersions would produce an aggravation of the evil. Again, we never see a conscientious medical

man dare to prescribe a bath at 12° C. in such serious cases as abound at Lourdes."

§

Suggestion.

Naturally, "Suggestion" has been called in. We know that it may have effect in diseases of a nervous character. But, as already stated, we refuse to take account of these at the *Bureau des Constatations* at Lourdes. It does not come within the scope of this book to make a profound study of suggestion. It is a discussion of the schools, and would here be out of place. I shall content myself with stating some elementary facts, short but sufficient for the purpose, to show that suggestion is without the least effect on organic lesions as far as we have clinical means of judging.

Suggestion is employed therapeutically under two forms: (1) During hypnotic sleep; (2) during the waking state. There is no question of the first, for hypnotism has never been employed at Lourdes.

There remains only suggestion in the waking state. This consists in imposing an idea on a patient for the relief of some pain or contracture, etc.; but this acts only on the pathological manifestation and not on the disease itself, and the failures are innumerable. Bernheim has definitely stated[1]: "When neurasthenia is hereditary, when it is due to some radical change in the nervous system, then we must have the courage to

[1] Bernheim: *Hypnotisme, suggestion, psychothérapie.* Paris, 1903.

acknowledge that it is often incurable," because suggestion has not been able to reach the seat of the trouble. Lavrand[1] has rightly said: "Suggestion does not act on the vital processes, for we know how little capable it is of modifying nutrition . . . to act here time is necessary. The results are not rapid, never sudden. The ordinary laws of repair are obeyed, and the modification of the cells and tissues follow the mode which we always observe in these reparatory processes."

We shall see that apropos of faith-healing Charcot says precisely the same thing.

Fiessinger[2] very happily compares the cures of Lourdes to the wounds of the martyrs, whose faith increased with a prolongation of their agony.

Is it possible to speak of suggestion in the case of those miraculously cured who declared loudly when going to Lourdes that they went without any confidence of being healed? At Lourdes I have seen enormous varices of both legs disappear, in the case of a priest who declared to me that before he made the pilgrimage he was without any hope of cure, and went solely to please his bishop, who had ordered him to go. He returned absolutely cured, resumed an active life, and for the last seven years his cure has remained a permanent one.

Perhaps he merited his cure because of his obedience to his bishop. I mention this case

[1] Lavrand: *La suggestion et les guérisons de Lourdes.* Paris: Bloud, 1908.

[2] Fiessinger: *Science et Spiritualisme.* Paris.

because it was known to me personally, but there are many other similar cures.

Medically it would be absurd to maintain the theory of suggestion in the case of children of twenty to thirty months who are cured in the baths. Huysman has described perfectly their mentality: "One must have seen the children being bathed to take note of their state of mind. At that moment they do not think of praying to the Virgin any more than of being healed—they struggle, weeping and crying, and once in the water they howl."

Moreover, one of my confrères, Dr. Aumaître, of Nantes, has seen his child, aged twenty-three months, instantly cured of a surgical affection of both feet, and this after the failure of a surgical operation.

§

Faith Healing.

Faith Healing, about which for some years there has been much discussion—more especially in the English periodicals—is nothing else than another form of suggestion, as is very obvious.

This was the great argument of Charcot, who wished to see only nervous phenomena at Lourdes. He always quoted that pseudo-miracle, the cure of the Demoiselle Coirin at the tomb of the Deacon Francis of Paris, 1731.[1] Here is the account of this case:

The Demoiselle Coirin had two falls from her horse; on the second fall her breast struck a

[1] Charcot: *Le foi qui guérit*, Bibliothèque diabolique. Paris: Alcan, 1897.

heap of stones. The pain was so severe that it caused fainting. Three months later it was noticed that the breast was swollen and very hard and had a bluish appearance. Ulceration occurred and extended to some depth. The patient had at the same time a muscular contraction of the muscles of the left side. She then applied to her breast a little of the earth taken from the tomb of the Deacon Francis of Paris, and wore a chemise which had also been placed on his tomb. She was surprised to see that the wound healed rapidly, and that little by little the contraction of the left side disappeared. Nevertheless the cure was not instantaneous. "It must be added," says Charcot, "that the wound of the breast was not completely cicatrized until the eighteenth day, and the contraction of the left side did not allow her to mount into a carriage until forty-eight days later."

Charcot demonstrates that Demoiselle Coirin was a very good example of hysteria. The blow caused an œdema of the breast by functionally paralysing the vaso-motor nerves, causing swelling and venous congestion. These troubles caused necrosis of the cutaneous cells and the formation of an ulcer. Suggestion at the tomb of the Deacon Francis of Paris caused disappearance of the paralysis of the vaso-motor nerves. The circulation being re-established, the breast made rapid progress towards cure.

This is what Charcot explains to us very clearly: "Œdema, by arresting the circulation in an hysterical subject, causes mortification of

the tissues and ulceration. When the œdema no longer exists repair commences."

Charcot has rendered a valuable service in studying so carefully the case of Demoiselle Coirin. He enables us to see in all its details how a false miracle occurs in a subject of hysteria. He explains in a clear and luminous manner how a wound may heal under the influence of suggestion.

" This case," he says, " as well as many others, shows clearly how the cure, whether it is called supernatural or not, comes about under the influence of *faith healing* and obeys natural laws. . . . The œdema of the breast (caused by paralysis of the vaso-motors) not existing any longer, the local nutritive conditions of the tissues are favourably modified. The wound of the breast cicatrizes in virtue of physiological laws, which are as well known as those that preceded and presided over the appearance of the gangrene. But complete cicatrization demands a certain definite time, and it was not until fifteen or more days later that the skin of the breast was free from ulceration and commencing to cicatrize."

This method of cure occurs in all ordinary physiological scars ; the evolution of the embryonic cells of the granulation tissue is caused by their transformation into adult cells with the rapidity which we see in surgery, when the general state of the patient has suddenly undergone a great amelioration.

This is precisely what Charcot emphasizes when he says in the case of Demoiselle Coirin, " the

local conditions as to nutrition are happily modified."

Now, this is exactly the opposite to what we see at Lourdes, where large ulcers disappear with a rapidity which is quite contrary to nature. Such was the case with Joachine Dehant, of Gesve, in Belgium, who arrived with an ulcer of the leg at Lourdes on the 13th of September, 1878. The ulcer in question was 32 centimetres in length, extremely foul, and in parts almost gangrenous; this ulcer was completely healed on the same day, between the morning dressing and nine o'clock in the evening.

It is interesting to note what a signal service Charcot has rendered to the Church, though certainly not aware of it, in his study of the case of Demoiselle Coirin. With his great authority and prestige, he has furnished the best clinical and physiological proofs to demonstrate the falsity of the pseudo-miracles obtained at the tomb of the Deacon of Paris, for the truth of which the Jansenists contended so strenuously.

Charcot has also thrown light on the great wisdom of the Church, which has always refused to see in these cures any supernatural action, or anything differing from the normal pathological processes. Speaking the language of modern science, he is absolutely in accord with Pope Benedict XIV, who, two hundred years ago, taught that the cure of morbid symptoms, which accompany the crises of hysterical cases, must not be confounded with the cure of the malady itself.

I have said that Charcot would only see at

Lourdes nervous phenomena. When the supernatural cures of organic lesions were placed before him he refused to examine them, and said that they should be rejected without any investigation being made. Had he had the true scientific spirit, and studied them, he would have seen that the Church had long before, put herself on guard against the errors which may occur with regard to nervous maladies.

§

Absence of Infection at Lourdes.

Having concluded the study of the intermediary agents, I should not fail to mention a peculiarity of Lourdes which is never met with in populous centres where a number of persons suffering from all kinds of diseases are gathered together. This is the absolute immunity that exists with regard to the spread of disease.

For many years the fact has been noticed and it has no medical explanation; the sanitary condition of the town of Lourdes is excellent, and the death-rate very low in spite of the fact that the crowds of patients suffering from contagious diseases should make it higher than almost any other town.

To this small locality come on an average 900,000 visitors a year. Sometimes there are 20,000 patients of whom many are suffering from advanced disease. A great number of these are tuberculous cases, complicated by pulmonary and osseous suppuration, and not taking even elementary precautions to avoid scattering the bacilli broadcast.

The piscines are cleansed many times during the day, but despite these precautions, the water contains pus from the sores and ulcers of the patients who are plunged into the water one after the other, remaining only two minutes at the most. It would be impossible to renew this water or to cleanse the piscines after each bath.

If the bacteriologist were to make regular investigations at the Grotto, in the piscines, or even in the rooms where the patients are received, he would find an abundance of very virulent bacilli. At Lourdes are to be found accumulated all imaginable forms of infection, and only there do the people seem to have a supreme indifference for the fears of infection expressed by official hygienists.

Moreover, and it is a fact which has struck the most superficial observers, these germs do not produce on the town population or amongst the pilgrims any harmful effect. The town of Lourdes has never suffered from epidemics even during the great pilgrimages. Mortality amongst the pilgrims is from 8 to 11 a year, which gives on an average the low figure of 1 death in 2,000.

There have been no epidemics in the towns traversed by the hospital trains. Dr. Biraud, municipal councillor, and member of the sanitary commission of Poitiers, a town where all the hospital trains stop, declares that in thirty years no epidemic could be traced to these trains.

This is certainly most extraordinary and contravenes our usual medical experience. Speaking as a medical man on purely medical grounds,

it would be most interesting to make scientific investigations in order to discover what has happened to the tubercle bacilli, usually so virulent. Are they destroyed, or do they simply lose their virulence ? The same question could be put concerning the other bacilli which flourish in wounds, and yet remain inert in the water of the baths. We have certainly the right to ask if the mysterious Force which causes the restoration of living tissue does not also have an influence in rendering inert the action of bacilli.

It is most interesting to contrast these facts with what has happened in Madeira and the Canary Islands, to which places wealthy consumptives have betaken themselves during the last century, with the result that the native population, formerly free from tubercle, has been decimated by that scourge.

CHAPTER VI

UNKNOWN NATURAL FORCES

THE explanation of the miraculous by invoking unknown forces rests on nothing more solid than a hypothesis, this being that there are forces in existence more powerful than those so far demonstrated by science. The formation of theories is perfectly legitimate and often the occasion of fruitful discovery. The theory of the existence of germs, guided Pasteur in his conflict with the theory of spontaneous generation, and led him on to his wonderful discoveries.

But these successful theories are never isolated, they never contravene demonstrated natural laws. They are, in fact, a development of these laws. As Lavrand said, "No phenomenon can justify us in admitting the fact of unknown forces which one day will be discovered and will destroy our scientific knowledge. Such a thing has never happened since the beginning of the world, and cannot happen without producing a total reversal of physical, chemical, and mechanical science. It is a supposition that cannot be entertained, for our knowledge has been developed gradually, and no new biological law has ever appeared to destroy and replace any ancient law." [1]

I may be permitted to say that these general laws have not been abrogated by the discovery of those natural forces upon which our opponents built such hopes.

[1] Lavrand: *La suggestion et la guérisons de Lourdes.* Paris: Bloud, 1908.

Natural forces can act only by way of synthesis and analysis. Our scientific method is built up upon nature's processes, and these can only cause the transformation of existing matter, either by the co-ordination or separation of primary elements. We never see there the appearance of elements not already existing as in the instantaneous formation of callus, or the total disappearance of substance as in the spontaneous healing of a cancerous growth.

We can, then, affirm without fear of error that the unknown undiscovered natural forces will not differ in kind from those of to-day.

For all time the *transformation of matter* has been the main object of study for philosophers and men of science. It has loomed particularly large recently owing to the discoveries in physics, notably those of Curie on Radium, and of Sir William Ramsay on Helium; the elements of this series seem to be in a state of continual transmutation; Radium generates the gas Emanation, which, in its turn, evolves Helium. This would seem to be an example of one simple element transforming itself into another. Helium seems to border on that primitive element the Ion, which appears to be the ultimate free particle in the process of the dissociation of matter. This Ion contains an enormous store of energy, which can manifest itself in the form of heat or electricity, etc.

These energies would seem to have their source in a mysterious substance which evades our means of research, and is termed the Ether.

The primordial molecules of this Ether, at first in repose, become capable of movement and gradually evolve and produce other bodies. In the case of these complex bodies, after a time a process of dissociation sets in, and there is a return to the primitive Ether. Natural forces, then, studied in the light of modern science, conduct us by a path of successive transformations from complex bodies to the unity of matter.

Obviously, we never meet with the destruction of matter, but only with some modifications of its form under the influence of long-continued forces, which have always controlled and governed the elements, but of which we have no knowledge.

If, then, we prove that in the various forms of energy all the successive transformations make us work back to a first principle, we shall be forced to recognize as the origin of the various energies a first sole existing being, that is to say, God.

It will be easy to see that in the domain of biology, the undiscovered natural forces cannot annihilate the known natural forces. These facts applied to the field of clinical medicine show that natural forces acting on a tumour cannot annihilate it any more than they can annihilate matter. They can only transform this living nitrogenous substance, by reducing it to its first principles, gases and solids. I have discussed this question apropos of the chemical biology of cancer (page 34). There I explained that in the supernatural cure of cancer, what happens is not the transformation of matter, but its total disappearance—a very different thing. This can only be produced by

the action of a force differing markedly from natural forces, for only a supernatural force has the power of causing the absolute suppression of matter.

The critical observer of these mysterious forces may be astonished to note that certain sick people have been cured although they have not asked for their cure. Must we attribute the grace they have received to the prayers of those around them ? This is a question for theologians to answer. It cannot escape notice that the curative action of these mysterious forces, so frequently seen at Lourdes after fervent prayer, never evinces itself at the behest of even the most distinguished scientists. Do we not feel that there is here something quite different from natural facts.

In reading the accounts of these cases we see clearly the intervention of a supernatural force which supplies absent matter which produces all the necessary modifications, and effects all these changes, often in contradiction to our biological laws.

In the sudden cure of the old suppurating fracture of De Rudder, there was necessarily a conveyance to the site of fracture of a quantity of phosphate of lime which did not exist in the blood of the patient. As this phosphate is only found in the food introduced into the digestive tract, has then to be elaborated by the secretion of the intestinal glands, assimilated by the blood, and carried by it to the seat of fracture, and as all this work takes place under definite chemical and physical laws, it is necessarily a slow process.

How, then, can we maintain that a natural force could accomplish such a work instantaneously ?

Again, how is it that this unknown force is never seen in the millions of similar cases which are under the care of medical men ?

It is the same with cancer.

When we consider the physiological life of cancerous tissue, we are struck by that characteristic on which I have insisted at length on page 31, namely that cancer, by its very nature, infects the human body both by its cells and by the toxins which these cells secrete and pour into the blood.

Here we have a fact of nature; it is the specific property of cancer and has always been the same. How, then, can it be logically maintained that where cancer disappears abruptly (as in the case of Clément and Lapeyre) it has been effected by some natural force ?

In that event this natural force would run counter to that which governs the evolution of cancer. This would be the annulling of function by nature, the destruction of nature by itself, a thing wholly illogical. Consequently we must have recourse to some superior force, that is to say, to the supernatural.

The defenders of the action of unknown natural forces endeavour to base their arguments on the definite knowledge that clinical and experimental physiology supplies us with concerning the regeneration of certain tissues, and suggest that one day the parts composing an amputated stump

will find in themselves the necessary elements for autogenesis.

There is the objection. Let us see how our adversaries formulate it. From time to time we hear it said : " I would believe in the miraculous if I could see an amputated limb renew itself."

The appearance of elements not existing would assuredly be miraculous ; let us add that even this would not suffice in the case of a certain unbeliever, whose outlook everyone knows from the sophisms so lavishly to be found in his novels.[1]

Let us see what he says about such a supernatural fact :

> If an observer of a truly scientific spirit was called to testify that the amputated limb of a man had been suddenly renewed in the piscina or elsewhere, he would not say, " Here is a miracle." He would say an observation, as yet unique, would seem to show that under certain circumstances, as yet not clearly known, the tissues of a human leg have the property of reconstituting themselves, as happens with the claws of lobsters, the limbs of crayfish, and the tails of lizards, but much more rapidly.
>
> Here is a fact of nature in apparent contradiction with other facts of nature. This contradiction is the result of our ignorance, and we see clearly that animal physiology must be refashioned, or rather that it has never been properly constructed. We have only known of the circulation of the blood a little over 200 years, and it is barely a century that we have known what it is to breathe.

Truly this reasoning has nothing scientific

[1] Anatole France : *Le jardin d'Epicure.*

about it, but is that of a man of vivid imagination ; however, it will be interesting to examine these views and show that they contain within themselves the elements of their own refutation.

It is useful to study this argument, for it shows that the spontaneous regeneration by natural forces alone is but a dream and an impossibility. Let us investigate in the light of physiological principles and see if such an evolution of anatomical elements is humanly speaking possible in the sense wished for by our opponents.

To do this it will be necessary to make a short and summary digest of our knowledge concerning the regeneration of anatomical elements. Of what elements is a living limb composed ? There are the soft parts—skin, muscles, nerves, and vessels —and the hard parts—the bones. Let us see if these different tissues contain in themselves the necessary principles for the required evolution. It could, perhaps, be maintained theoretically that some of the soft parts of an amputated stump might be in a position to furnish the necessary elements for their reproduction, it being understood, however, that the factor of *time* is absolutely necessary. Cellular tissue and fat renew themselves by means of embryonic cells and of cells already existing. The vessels, arteries, and veins are renewed by means of the capillaries, which bud forth in the tissues of new formation commencing from the old vessels.

But it is not the same for the other elements forming the stump. No similar process exists for the regeneration of nerve tissue. The extre-

mities of the cicatrized nerves are terminated by fibrous tissue. A nerve cell has never been seen to issue from the extremity of a nerve and direct itself towards the skin scar.

We know very well that the wounds of nerves are healed by the formation of new nerve tissue in the following manner: the central part of the nerve tube increases in length and passes down the axes of other tubes. Continuity of the nerve is thus re-established, and we see clinically the nervous functions reappearing after a considerable time, at least eighteen months.

This is very different from the instantaneousness of a miracle. Moreover, we know that this auto-regeneration of the nerves can only take place under very special conditions. It is necessary for the two extremities of the cut nerve to be very close to one another. If the interval is one of 2 or 3 centimetres, nervous regeneration does not take place.

But as these conditions do not exist in amputations, the nervous regeneration of stumps is impossible. The red muscles which form the muscular flesh can partly regenerate themselves, at the expense of the cells of connective tissue (Bardeleben), as also by the formation of complete muscular fibres, and develop themselves between the old fibres; but it is always at the expense of cells situated outside the muscle fibres that the new muscle fibres are constituted (Cornil and Ranvier). We never see muscle fibres develop in the terminal cicatricial tissue of a stump and elongate the muscle section.

Consequently, it is against all clinical experience and experimental physiology to suppose that one day it will be possible, not to say probable, that some natural force will produce the result demanded, namely the complete regeneration of the soft parts of an amputated limb. So much for the soft parts.

Now let us see what can be said for the hard parts. The possibility of auto-regeneration here is still more difficult, for the elements needed for the re-formation of bone do not exist in the body but must come to it from outside. The weight of the dried bones of the foot and leg in an adult of normal stature is about 500 grammes. There is thus a necessity for 500 grammes of phosphate to be found.

Phosphate of lime is a mineral and cannot be reproduced as can the living cell. It comes from food introduced into the digestive tract consequently from outside, and as I explained when discussing the cure of De Rudder, the blood only contains 1·60 grammes in the free state. The food which furnishes the phosphate of lime is elaborated in the digestive tract, and in the case of the adult only as much as is necessary to sustain the tissues of the body without increasing in bulk ; or, if one prefers it, without adding anything to the already existing matter.

To maintain himself in good health, an adult requires daily food both liquid and solid, weighing in all about 1,200 grammes. These 1,200 grammes produce and maintain in the blood 1·60 grammes of phosphate of lime obtained from outside.

To produce the phosphate of lime necessary for the instantaneous formation of the bones of a leg without violating natural laws, it would be necessary to absorb, digest, and assimilate at least 320 kilos of food at a time, four and a half times the total weight of the body. Of course, the idea is preposterous. Moreover, it has already been pointed out that, for physiological reasons, the digestive process can be only accomplished in regular sequence.

Proof has been given, then, that natural forces are powerless to produce instantaneously a limb from an amputated stump.

It might be objected that this could take place gradually since the physiological growth of the body is slow. It is easy to show by anatomical arguments that this is impossible. The increase of a bone in length is made by means of two layers of cartilage situated between the shaft of the bone and its two extremities. These are the cartilages of conjunction, or of growth. At the age of twenty-five in the case of a man these cartilages are completely ossified, and growth is arrested. In the stump of an adult the one cartilage that remains is ossified, and the other has been removed. Obviously, there is no possibility that the bone of such a stump could grow in length and reconstitute itself. For such a thing to happen one of two things would be necessary, either that the cartilage should begin to grow, thus reconstituting itself after it had been completely ossified; or that the cicatricial tissue that covers the bone at the spot where it has been cut should receive the

power of forming osseous cells. Natural forces have not this power. The other impossibilities which I have noticed in the case of the soft parts also exist in their entirety.

We see, then, that this famous objection contains within itself the elements of its own destruction, and has been put forward by imaginative people who have not thought of the physiological problem it entails.

One can hardly reproach the critic of whom I speak for his expressed opinion, because, after all, he is not a physiologist, but a novelist.

If this question of the renovation of a limb is probed to its depths, and the basis of such criticism illuminated by the light of science, we inevitably arrive at the need for creative power. This is the exact contrary to what unbelievers have both desired and imagined.

If, now, we abandon the safe realm of clinical experience and experimental physiology for reason, the following must be our conclusions: Since we have studied the human body, we know that the anatomical structure of the organs has never varied, the microscopic cells of which these organs are composed, and the natural laws which regulate their functions have not changed.

There is an intimate relation between the laws governing the functions and the structure itself. This fact is demonstrated by disease. Disease is an alteration of the cells of the organs, which cease to function normally.

Simultaneously with altered structure appears

aberration of function, which persists as long as the change caused by the disease exists, since the abnormal condition of the affected organs disturbs the normal action. When the disease disappears and the organic cells resume their normal condition, healthy function is restored, consequently there is a perfect adaptation of function to structure. Can it be imagined that unknown natural laws could make our organs function in an unknown manner, a manner which would not be adapted to their structure ? If this were so, it would necessitate a structural modification and a new and anatomical type would have to make its appearance.

Admittedly God could create a body of a totally different type from that with which we are acquainted, with a different anatomical structure, and different anatomical laws adapted to that structure, violation of which would be supernatural. But our philosophical concept is so limited that it is most difficult for us to picture such a type.

Logically we can only base our reasoning on the body anatomically constructed as we know it. How, then, can we admit unknown causes bringing into action physiological laws adapted to an unknown anatomical substratum, whilst the structure of our body remains what it is ? This is to enter the region of pure hypothesis ; to abandon the teaching of clinical observation, anatomy, and physiology, which are the basis of medical science.

The comparison made between the limbs of

the human body and the claws of lobsters has no scientific value. The anatomical structure of the tissues is different, and they are governed by different anatomical laws. The comparison is ridiculous.

CHAPTER VII

OBJECTIONS AND OPPONENTS

OUR opponents' attitude, when shown these cures, may be classed under various categories. There are some who deny the facts absolutely and refuse to make any examination; from preconceived bias they will only allow supernatural cures in the case of nervous maladies.

A medical journal which for a long time was the official exponent of the Salpêtrière School, gives us a striking example. It states:

"We say that these cures can be obtained only in hysterical cases such as those presenting paralysis, contracture, hysterical blindness, or aphonia, etc. . . . If they quote cases of cancer, or definite organic maladies, cured at Lourdes or elsewhere, reject such statements at once; these are inventions, lying cures which exist only in certain journals, and in the imagination of those whose interest it is to exaggerate facts and to propagate error." [1]

Here is negation pure and simple without examination.

There are certain medical men who, rather than acknowledge a cure they cannot understand, do not hesitate to give a false certificate.

I much regret to say that such unworthy members of the profession exist, and that the late Dr. Boissarie had in his hands written proofs showing that some doctors have purposely altered their first certificate in order not to acknowledge

[1] "Les guérisons miraculeuses et la science," Dr. Terrien (de la Vendée), *Progrès médical*, 1901, No. 4, page 65.

that they had judged the disease to be incurable.

Here is a proof: the following incident happened to Dr. Boissarie, who recounts it in his work on Lourdes [1]—it shows clearly the prejudice of some medical men, who will do all that they can in order not to acknowledge the truth.

A patient arrived at Lourdes with the certificate of her doctor, certifying that she was suffering from pulmonary tuberculosis. She was cured after a bath. At the *Bureau* the cure of the lungs was certified. A telegram was then sent to the doctor asking his opinion of the condition of the patient, but without mentioning the cure. He telegraphed back, "She is tuberculous." Other medical men in the neighbourhood had also made the same diagnosis. The patient returned home, where her doctor examined her, and the examination being concluded, she asked for a certificate testifying that she was cured. The doctor gave her one stating that she was cured "of a simple cold." The "phthisis" of both certificate and telegram was changed into "a simple cold" rather than acknowledge the supernatural cure.

Many of the opponents of miracles reject them *a priori* because they do not agree with the laws of science. They refuse to examine the cases that are put before their eyes, and even decline to accept the evidence of medical men. They say that their confrère, the author of the certificate, must have been deceived and that the

[1] Boissarie, *Lourdes*, page 12.

cure could only have come about in such and such a manner. They formulate an hypothesis and eventually take their hypothesis for proof.

This is not fair. If a diagnosis is in doubt, it ought to be discussed, as is done at our medical gatherings, and objections raised, based on clinical symptoms. Dr. Renon has justly said : " It does not do to deny the diagnosis of another doctor when the patient has not been seen either before or after the cure. To argue *a priori* in this manner proves that no sufficient reason exists to oppose the opinion of our colleague."

Anyone who rejects evidence without weighing it, simply because it contradicts his own preconceived ideas, commits an act definitely hostile to the science of observation, even against medicine itself.

Medical science is based solely on clinical observation, but it constantly evolves. It sometimes happens that new facts are alleged, which seem to contradict knowledge which was believed to be definitely established. When these new observations are formulated they are not rejected *a priori*; they are discussed, studied, and compared with similar observations. If we proceeded otherwise and rejected *a priori* newly observed facts because they were embarrassing, scientific progress would cease.

Sometimes, in the heat of discussion about the miraculous at Lourdes, unkind expressions are made which would not have been uttered during calm deliberation. Catholic medical men would be perfectly justified in protesting against such

conduct. They refrain, however, because their opinions rather than their persons are attacked. Nevertheless, they realize that these critics impugn their religious convictions and their desire to bring the truth to light.

§

A "Scientist's" Opposition.

It is quite natural that some scientists should show special caution when dealing with the supernatural, for they have not forgotten the humiliating experience of two of their confrères, declared enemies of the Church, whose reputation has been tarnished because they attempted to make their account of Creation agree too closely with their materialistic theories.

One of these is Haeckel, the German scientist, who spent his life searching for proof of absolute Transformism, without achieving success. To demonstrate "spontaneous generation" he had minutely studied the famous "Bathybius," an unformed mass, which Huxley imagined to exist in the depths of the sea.[1]

Here, in a few words, is how Haeckel described this extraordinary substance[2]:

"When living bodies first appeared on our planet, which up till then was an inanimate mass, an extremely complex chemical substance must have been formed primarily, and this we call protoplasm, or primitive

[1] Huxley, "On Some Organisms living at Great Depths in the North Atlantic Ocean," *Jour. of Microscopic Science*, viii, No. 6, 1868.

[2] Haeckel: *Jenaische Zeitschrift*, v. 3, 18.

mucilage. Even in our days, in the almost unfathomable depths of the sea, this simple homogeneous mass of protoplasm still exists. It is the *Bathybius*. We give the name of 'Monère' to each of the individual cells of this unformed mass. The most ancient monères are born by spontaneous generation in the sea."

Unfortunately for this assertion, all the observations and researches made by the naturalists on board the *Challenger* have proved incontestably that Haeckel's *Bathybius* is nothing but a chemical deposit.

The naturalist Vogt, who is far from being a Christian, ridicules this discovery, calling it "Haeckelian Calcium Sulphate."

Inasmuch as this substance is purely mineral, the particles which compose it, "the Monères," can only be animated by a purely imaginary life; a life of such a kind that the Russian physiologist, De Cyon,[1] ironically says, "This wonderful living *Bathybius* has all the necessary qualities and only one defect, that is, it does not exist."

Haeckel, in his numerous works, *The History of Creation*, *Anthropogeny*, *The Human Problem*, *The History of Creation and of the Faith of the Church*, had a definite end in view, the destruction of religious faith. His desire was to replace the Bible by his work *The History of Creation*; he demanded that these doctrines be introduced into the scholastic programme as the basis of teaching for the young. He even dared, on

[1] De Cyon: *Dieu et Science*, 2me édition, Paris, 1912.

July 30, 1908, to inaugurate at Jena the first edifice erected in honour of the "Protozoan Divinity." His work *Menschen problem* (the Human Problem) was to become the Gospel of the new religion, as he was to be its high priest. But a much graver indictment is that Haeckel was definitely detected falsifying scientific facts. Brass (*Das affen problem*, Leipsic, 1908) has proved that Haeckel had falsified the embryological figures of Selenka, of Van Beneden, and of His, in order to establish his theory of the descent of man from animals.

Professor Semper, of Wurtzbourg, says De Cyon, has noticed in a pamphlet (*Lettre à Haeckel*, Hambourg, 1877) the most striking instances of these falsifications. Twenty pages are devoted to the enumeration of faked diagrams in his *Anthropology*, without speaking of the figures, which are purely imaginary.

Haeckel himself (*Volkzeitung*, Berlin, December 29, 1908) was finally compelled to make this avowal: "Some of my figures have been falsified, notably those in which the observations I had made were incomplete or too insufficient to establish an uninterrupted chain of development. In these cases I was forced to fill the gaps by hypothesis."[1] On such false statements Haeckel, one of the glories of German science, endeavoured to build up his new religion. We are thus enabled to appreciate the basic value of the arguments employed by this great contemner of the Catholic Church.

[1] De Cyon, *passim*.

§

A Clinical Argument against Extreme Transformism.

Surgical observations made during recent years have furnished some unforeseen arguments against the complete transformism of Haeckel. It will be interesting to consider a few points on this subject.

Many readers have heard of the remarkable laboratory experiments made by Dr. Carrel. He has succeeded in grafting important parts of the body of one animal on to another. Surgeons had consequently hoped that it would be possible to graft on man parts taken from an animal, and thus repair the loss of tissue caused by disease.

Some over-impulsive transformists at once said that this intimate fusion of the cells of an animal with the cells of a man is an excellent proof of community of origin, and a demonstration of the descent of man from the animal. They derided the theologians, saying: "A graft has been made of a part of an animal soul upon a human soul—how do the apologists explain such a thing?"

Had the question any serious foundation, the theologians would, no doubt, have given it due attention, but this brilliant reasoning was doomed to complete failure. Clinical experience has shown us that animal tissues transplanted on man do not live; after a comparatively short time they disappear by absorption. Animal grafts give no useful result; there is an incompatibility between tissues having a different

origin. Grafts taken from a human subject are the only ones that will grow on man.[1]

As a result of this experience the argument turns against the transformists. It has been truly said that we shall discover no difference, either histological or histo-chemical, between the physiological functions of the human and the animal cell; but the fact remains that clinically the animal and the human cell will not fuse.

Have we not the right to think, then, that the difference dates from the primordial cell of being; and that to use a common phrase, man and animal have not been cast in the same mould?

§

False Assertions of Stephen Leduc.

Another opponent of the miraculous, of whom I have now to speak, is Dr. Stephen Leduc. He has made two communications to the Academy of Sciences, one on July 24, 1905, the other on January 7, 1907, and a third to the congress of German scientists at Méran in 1905, where he was regarded as a discoverer.

Leduc presented the following experiment: If a drop of solution of saccharose is allowed to fall into a solution of sulphate of copper, curious arborizations are formed which resemble plants. The German savants accepted without protest

[1] Surgeons have tried the inclusion of pieces of ivory, of decalcified bone, and grafts taken from the skin of animals. These fragments, when well asepticized, can be tolerated by the human tissues, just as metallic bodies can, but they are never assimilated. The uselessness of these living grafts has made this practice fall into desuetude.

the idea formulated by Leduc, that these artificial seeds had considerable analogy with natural seeds and their living cells. The idea was given great prominence in the secular Press, which saw already the annihilation of Genesis!

Unfortunately for Dr. Leduc, M. Gaston Bonnier, a member of the Institute of France, in the session of January 14, 1907, demonstrated that these pretended living cells are nothing but chemical products known in the laboratories under the name of "Traube's Experiments." They are curious endosmotic phenomena, and there is nothing living about them.

§

Methods of Certain Antagonists.

Scientific discussion sometimes becomes very difficult. Here is a good example. Our colleague, Father Gemelli, when he became a Franciscan, had personal experience of the impossibility of discussing questions concerning the miraculous with opponents determined to reject all supernatural cures.

In January 1910, at the Medical Society of Milan, the *Associazione Sanataria Milanese*, of which he is a member, Dr. Gemelli put forward the scientific reasons which had led him to conclude that there were cures outside natural law.

A dozen doctors replied, and they all commenced by affirming their adhesion to a positivist philosophy which rejects the miraculous. Some would not discuss the matter at all, but replied by a disdainful silence. Others asserted that

auto-suggestion could produce the callus of a fracture, as in the case of De Rudder, by some physiological law to be discovered later. Many rejected the evidence of the Belgian doctors, on the plea that they must have been deceived. Others, again, accused Gemelli of having falsified the facts that he presented. They accused him of deceit because unwittingly he had attributed to Dr. Dubois, of Berne, a statement which had really been made by Dr. Bérillon, of Paris.

One doctor clamoured for a radiograph of De Rudder's leg taken before the cure. This exacting personage was apparently ignorant of the fact that radiography did not exist in 1875. This gross ignorance makes the enormity of his objection better understood. They ended by reproaching Gemelli with having left the Socialist party, of which he had been one of the principal orators. . . .

§

Demand for an Experimental Miracle.

Some doctors desire that miracles should be laboratory experiments, and following the example of Renan, they ask for the appointment of a scientific commission, which shall choose a case, demand a miracle, and then pronounce on the existence of God.

Manifestly, the underlying motive is to embarrass believers. Of course, the idea of making scientific demonstrations of the miraculous is a vain one, for we cannot command God, nor impose conditions controlling His acts. Yet God, with His infinite mercy for our infirmities,

does not deny us the privilege of investigating these miraculous cures. This is the purpose for which the Medical Bureau exists at Lourdes, and we ask repeatedly that patients come with truthful medical certificates and be carefully examined at once. Then let them have recourse to prayer, and if a miracle is granted let it be duly authenticated. There is nothing in this which is not respectful towards God, and scientific at the same time.

Miracles are not performed to order. They are asked for in numberless cases, but granted very seldom. A very remarkable thing, and one which indicates clearly the superficiality of our judgments, is that the Divine Physician often sees fit to heal those who apparently merit it least. The case may be cited of a woman, whose conduct was not beyond reproach, and whose religious practice was nil; she was suddenly cured of optic atrophy, and yet it was a considerable time before she was reformed.

Another curious thing is that miracles are rare in the case of the rich. They occur above all amongst the poor; of this the annals of Lourdes provide abundant proof.

CHAPTER VIII

CONCLUSIONS

IT will be useful, I think, to sum up what has been said thus far on the proof of the miraculous in these cures, and at the same time to show that those who deny our claims cannot bring forward any proof of the action of natural forces.

If they invoke known forces they run up against impossibilities.

If they take refuge in unknown natural forces, they are obliged to admit the destruction of matter by itself, which is illogical, for it is impossible for matter to produce or to destroy itself. They thus run counter to logic, and question the certitude of the laws ruling the normal activity of human bodies; and this because they will not admit any supernatural departure from these laws owing to their pretended immutability. Such unknown natural forces must act contrary to known forces. This, again, would be the destruction of matter by itself.

When we place before our opponents the sudden cure of a fracture, they cannot invoke any natural force capable of producing instantly the necessary phosphate of lime, which does not exist in the free state in the human body.

If we demonstrate the total disappearance of a cancer and its accompanying toxins, they cannot show us any natural power capable of causing the total disappearance of nitrogenous substance, without leaving the slightest trace of its mineral constituents. The instantaneous formation of

cicatricial tissue does not allow the time necessary for the ordinary evolution of cellular life, and this evolution is absolutely necessary in the nutritive cell changes. The same applies to the sudden destruction of inveterate tubercle, pulmonary or osseous, with sudden return to health without convalescence.

The appeal to unknown natural forces is only an evasion. To be active these natural forces should be ruled by biological laws, and these would contradict laws of the same nature, certitude of which is proved to us by laboratory and clinical experience.

Certain newly discovered forces, as, for example, electricity under the form of X-rays, Radium, and bodies of that series, have explained phenomena the cause of which was previously unknown. They have ranged themselves alongside forces known for a long time, but they have destroyed none of them.

It is quite contrary with the miraculous, which is directly opposed to natural forces. Clinical observation and physiology demonstrate to us that phosphate of lime does not exist freely in the body. It appears instantly when a fracture is consolidated. Science teaches us that the essential property of cancerous cells is to destroy the cells of other tissues and to infect the system. Suddenly they lose their destructive properties, and are replaced by cicatricial tissue cells of benign nature. The experience of centuries has demonstrated that tubercle in all lesions is extremely refractory to treatment, and a cure

extends into years. Yet here at Lourdes, suddenly during a bath which lasts but a few minutes, in water which contains no agent capable of acting on the bacillus, the most advanced cases of tuberculosis are suddenly cured.

Here, evidently, is something directly contrary to all clinical phenomena, the careful observation of which has enabled us to formulate laws concerning the development of anatomical tissues. This by no means proves that these laws rest on a false basis and are incorrect; it simply shows that there exists a superior force which is not restrained by natural forces, and which acts on matter in a totally different way.

From what I have said, it is obvious that no valid scientific explanation exists for these supernatural cures. Moreover, these cures often contradict the clinical experience of corresponding medical cures.

I believe that I have shown, even apart from scientific explanations which might be dreamt of or imagined, as, for instance, the theory according to which a stump might grow again by natural causes, that such theories are both anti-scientific and inexact from the point of view of physiology.

The appeal to unknown natural forces is not an explanation; it is simply a note of interrogation, an hypothesis which will only suit those who are prepared to accept anything rather than admit the providence of God, Whose power acts above and outside natural forces.

I should not dream of making the supernatural character of these cures depend on the explanations

that I have proposed, nor on any other explanation whatever. On the contrary, I frankly admit that, humanly speaking, a miracle is inexplicable, and that is why it is a miracle. But because it is inexplicable it does not by any means follow that it is not certain. The proof of the miraculous is shown by demonstrating the insufficiency of natural forces to cause these instantaneous cures; but that attained, I consider that no explanation of the cure is satisfactory, save the intervention of Creative force, which alone is capable of conveying to the seat of disease elements not existing at the time, and of causing the total disappearance of existing hurtful matter.

It does not enter into the scope of this work to discuss the metaphysical reasons which should adjudicate between God and unknown natural forces. As a medical man I have not trespassed on this ground, which is the territory of the philosopher; this solution I have left to the theologians.

We Catholic medical men do not claim any knowledge of the mechanism of that mysterious force which operates in these cures; we simply state that nothing known to science can furnish an explanation of them. When we meet our adversaries, however, we maintain that we know the cause capable of producing such effects, and we proclaim loudly that it is the power of God.

In closing, I shall try to fix the attention of medical men on certain features of the miraculous cure which perhaps have escaped their attention. These points are known to theologians, who have

studied them for a long time. They are very clearly expressed by St. Thomas Aquinas, who, by philosophical reasoning, arrived at precisely the same conclusions to which clinical observation has led us.[1]

Taking a purely medical standpoint, we see that supernatural biological phenomena present themselves in the following categories :

I. In certain cures we clearly see Divine Power manifested. For God makes present the necessary elements for the cure, which undoubtedly did not pre-exist before in the organism. This was the case in the cure of the suppurating fracture of De Rudder's leg (page 119); of the fractured thigh of Margaret Verzier (page 131), and of the vertebral caries of Gabrielle Durand (page 140).

In these cases, to repair the bone lesion, there was need for the instantaneous appearance of a large quantity of phosphate of lime. But physiology teaches us, as I have explained at length, that this quantity of phosphate does not exist in the free state in the human body. It is absolutely necessary at the seat of disease, *it is there*, and the suddenness of the cure forces us to admit its supernatural character.

In this case the supernatural biological phenomenon *is the production of elements not previously in the subject.*

II. In the disappearance of a cancer, as in the

[1] St. Thomas Aquinas, *Summa Theologica*, Ia., Q. 105, Art. 8, Ia., IIae., Q. 113, Art. 10 ; *Summa contra Gentiles*, lib. III, Cap. 101 ; *Commentary on St. Matthew*, ch. xiv, in middle.

case of the recurrent cancer of the cheek of René Clément (page 180), and the recurrent cancer of Catharine Lapeyre (page 186), we see a totally different clinical phenomenon. This is the total disappearance of a living substance. As I explained when considering the physiology of the miraculous, we see the Divine Power exercising itself not only on the cancerous cells, but also on the poisons which are already in the blood. This disappearance is effected without leaving the slightest trace. It is exactly the same when the excess of length disappears in the case of varicose veins. Here we are in the presence of the reverse biological phenomenon to the preceding, *a veritable disappearance of the morbid elements.* This should cause no surprise, for it is as easy for God to destroy living matter as to create it instantaneously.

III. In the third category God acts in another manner. It would appear that He is content to use the matter already created, but He stimulates the cell to a different mode of action, without destroying its normal physiological life.

We know that in the cure of surface wounds, and in the formation of scar tissue, the cells multiply themselves from the periphery to the centre, as I explained before. God, however, can very well make a scar, not by creating new cells, but by causing the cells that exist at the periphery of the wound to multiply with a rapidity which is not seen in nature. This did happen in the case of the large ulcer of the leg of Joachine Dehant; in the case of the six intestinal fistulæ

of Marie Borel, which were cured in the space of about half an hour, and in the cure of the intestinal tuberculous fistula of Dr. X——. It must be noted here that the disappearance of tuberculous elements renders the case more complicated.

What is supernatural in all these cases is the fact that cellular evolution occurs in a manner which is quite contrary to ordinary natural laws. The biological phenomenon we maintain is supernatural, but without necessarily introducing material elements which were not previously existing in the organism.

At Lourdes these wonderful cures compel the recognition of a mysterious force emanating from the Holy Eucharist. It may be affirmed that the Divine Physician manifests His omnipotence at the moment of His passing to prove to men, by supernatural signs within the grasp of their senses, the reality of His Presence under the sacramental species.

Part Two

Medical Observations

I. VARICOSE VEINS

M. X——, of the diocese of Paris, fifty-eight years of age, is a robust man having the appearance of good health, and of being able to undergo all the fatigues of an arduous ministry. He gives evidence of a rheumatic diathesis, is of ruddy complexion, with hair prematurely grey, and suffers from slight wandering rheumatic pains.

The disease, from which he was cured at Lourdes, began to develop about the age of thirty-five. M. X—— then noticed that the veins of both his legs began to enlarge. At the same time he experienced a feeling of weight which rendered walking difficult and painful. At the age of forty-two years ulcers appeared. Dr. Roesch, of Marlotte (Seine and Marne), certified that there were six ulcers on the right leg and eight on the left of varying sizes. From the age of forty-two to fifty years suppuration was persistent despite treatment, and the pain became such that M. X—— saw the moment approaching when he would be obliged to abandon his work.

Following the advice that was given him, he decided to rest for a couple of months, and went down to the forest of Fontainebleau. The improvement following was so slight that Dr. Roesch told him that he considered his condition incurable.

At the age of fifty-one he was told to go to Lourdes and beg his cure of Our Lady. It was at this time that I saw M. X——, who said to me, "My Archbishop wishes me to go to Lourdes. I obey, but I go without any confidence that I shall be cured."

He then asked me to examine his legs. Both legs were covered with enormous varicosities mapping out the course of the saphena veins and most of their collateral branches. At the inner aspect of the knees were bunches of veins forming the so-called "Medusa's Head." The two saphena veins formed flexuosities reaching as far as the bend of the groin. Along their course were ampullary dilatations such as are observed in cases of old dilated veins. On the left leg, just above the internal malleolus, was a little elongated swelling, very tender to the touch. It was a clot situated in a limited part of the internal saphenous vein.

M. X—— was, as stated by Dr. Roesch, a typical case of varicose veins complicated with the usual ulcers.

At Lourdes, in the piscina at his first bath he experienced extreme pain in his legs. He compared it to the pain which would be experienced by the insertion of a red-hot iron under the skin. Instantly the varicose veins disappeared, as well as the ulcers.

M. X—— visited me a few days after his return, and I certify that the condition of the cure was as follows :

Right leg.—The skin was white. Under the

skin was a considerable amount of fat. The veins were normal both as to colour and dimensions, and showed no varicose dilatations. On the posterior aspect and just below the termination of the calf muscles were to be seen seven small stains of a slight rose colour. The skin covering these was quite supple. These skin cicatrices did not present any depression or adherence.

Left leg. — The same in general appearance. About the centre of the internal aspect could be seen eight small stains, having the same aspect as on the other leg.

I received a visit from this patient seven years later, and the following was his condition, September 24, 1915 :

The veins of both legs in their whole length were normal and absolutely straight. I can testify that there was no lengthening, no flexuosity, and no ampullary dilatation.

This perfect return of the circulation necessarily implies the perfect re-formation of the valves of the veins. The skin is of a darkish white. There are some very small cutaneous varicosities, but they are without importance. The painful nodosity of the left leg has disappeared. The site of the ulcers is indicated by some very small yellow stains, not showing the usual brown tinge, which is usual after the recovery of ulcers cured naturally.

All sensation of weight has disappeared, and the gait is normal.

M. X—— at forty-nine years of age had an

attack of syncope and a medical man detected a definite heart lesion.

After the cure of the varices all heart trouble disappeared. At the apex is to be heard at times a faint bruit, but this lesion appears to be perfectly compensated.

I can certify that the cure of the veins was complete, and that it was maintained without any relapse for seven years.

I trust that credence will be given to this case, and that it will be regarded as equally authentic with others that I have presented before learned societies, and which have never been disputed. It most certainly presents all the marks of authenticity which can reasonably be demanded. The veins were examined by Dr. Roesch, who did not hesitate to tell the patient that he considered him incurable. I saw the condition of the veins and the ulcers three days before his departure for Lourdes. I am convinced that he arrived at Lourdes in the same state as on the day of my examination, and that the lesions existed in all their gravity up to the time of his bath in the piscina. I saw him again very soon after his return, and then he was completely cured.

It is perfectly obvious that he did not have the time necessary for such a curative process during the few days that his visit to Lourdes lasted. There can be no doubt of the reality of the lesions, and the impossibility of a radical cure by medical means.

Finally, my examination of September 1915

proves his complete cure without the slightest symptom of recurrence, seven years after his bath in the piscina. I am therefore justified in saying that this was not a simple amelioration, but a complete cure.

I noted before in the chapter on pathological physiology what is the nature of the lesions produced by this condition of varicosity, so I shall now only briefly recapitulate.

The initial lesion is the formation of inflammatory cells in the thickness of the walls of the veins, which render them rigid. In the case of my patient the veins had recovered their suppleness. There must, then, have been an instantaneous absorption of this inflammatory tissue. We often see clinically this absorption of inflammatory cells in different parts of the body, but we also know that this process necessitates a considerable amount of time—weeks or months. Moreover, this absorption is not possible if the pathological tissue is either very chronic or considerable in amount.

But in this case the lesions were old, dating back twenty years, and they extended to nearly all the veins of the two legs. It is therefore in absolute opposition with what we see performed naturally.

I have explained the indispensable rôle of the valves in the veins. These valves in old varices atrophy and finally disappear entirely, this being the main cause of the blood stasis and consequent effects from which these patients suffer. Now, in this case, I certified the complete return to

a normal condition of the circulation. Consequently, I feel bound to conclude that the valves were reconstituted at the moment of the cure. To me it seems absolutely impossible to furnish the slightest medical explanation of this phenomenon. The valves, when the body is developing, are formed by a process of budding, on the internal wall of the veins, of all those histological elements which constitute the vessels. This development is slow, and follows the progressive development of the body as a whole.

We must, therefore, necessarily conclude in this case that, if these new valves are formed by budding, this budding must have been instantaneous, and this is against all natural laws. If, on the other hand, the old atrophied valves are renewed and have taken their original shape, this is equally contrary to nature.

Finally, I noticed very definitely in this patient the increase of length in the veins, and I can also witness to its complete disappearance. I ought to acknowledge that here we know nothing of what took place. The increase of tissue has been studied microscopically. We know that it is due to a multiplication of the cells which form the tissues of the veins. In medicine, however, we have never seen the veins lose this excess of length and return to the normal, and so we have been unable to study it. I add what will be easily understood, this disappearance is outside natural forces; it leaves nothing, and hence there is nothing to study. I have not emphasized here the disappearance of the ulcers, because

I speak sufficiently about this in the case of Joachine Dehant, and the curative process is, perhaps, of the same nature.

The ulcers in the case of M. X—— had not recurred seven years later; this, of course, was due to the fact that the veins were radically cured. In the chapter on physiological pathology I pointed out that we never see in medicine the *restitutio ad integrum* of these enormous veins, consequently there should be no hesitation in admitting that this cure, of which I was a witness, was not a natural cure.

II. SUPPURATING FRACTURE OF THE LEG

One of the most celebrated miraculous cures is that of the suppurating fracture of Pierre De Rudder. It has been studied in all its details and commented upon by Dr. Deschamps. Here I shall simply state the clinical history and show the impossibility of a natural cure.

Pierre De Rudder, of Jabekke, between Bruges and Ostend, at the age of forty-four had his left leg broken by a falling tree on February 16, 1867.

As a result both bones of the left leg were fractured at the level of the upper third. Dr. Affenaer reduced the fracture and placed it in a starch splint. After some weeks, as the patient had considerable pain, the apparatus was removed.

The condition then discovered was as follows: A large ulcer on the dorsal part of the foot;

a wound, having a gangrenous aspect at the level of the fracture, in which could be seen fragments of bone bathed in pus; a fragment of bone of several centimetres in length was removed.

Dr. Affenaer attended the patient for some months. Dr. Vassenaere and other medical men of Bruges and Brussels were also called in consultation. All were agreed that the fracture was incurable, and that amputation of the leg was inevitable. This the patient refused.

At the end of a year the patient left his bed, walking with crutches and dragging his leg. With some assistance he dressed the fracture himself. From 1867 to 1875 the condition of the leg remained unaltered and it was subject to abnormal mobility. By bending the leg at the level of the fracture, the extremities of the bones could be made to project in the wound. When the limb was extended these extremities remained separated by a space of 3 centimetres. It was possible to pivot the limb on itself, and turn the heel forward and the toes backwards.

On the dorsal aspect of the foot, at the base of the first two metatarsals, was another wound discharging a sero-purulent fluid. The patient told Dr. van Hoestenberghe that some weeks after the accident an abscess formed here, and that out of it came a "piece of cord." This was certainly one of the extensor tendons, probably the tendon of the great toe, which afterwards remained immobile.

The invalid was extremely pale, much emaciated, and his features portrayed weariness and dis-

couragement. He had the cachectic aspect of a chronic invalid.

In June 1874 Dr. Verriest saw De Rudder in this state and applied an apparatus to fix the limb. As no amelioration was obtained the splinting was given up.

Dr. van Hoestenberghe dressed the wound about the middle of December 1874, and stated that the leg was always in the same condition; he could twist the leg, turning the heel forward, could make the osseous extremities stand out in the wound, and see that they were necrosed. He verified the fact that when the limb was extended there was always a separation of 3 centimetres between the two fragments.

About the middle of January 1875, Dr. Verriest, seeing that all his care was useless, advised amputation, but this the patient refused. Medical visits were now made very seldom, because the local condition remained practically unchanged.

On April 2, 4, and 6, 1874, six persons in all were present at the dressings who were personally acquainted with De Rudder; they witnessed the abnormal mobility, the prominence of the bones in the wound, the separation of the 3 centimetres, and the foul-smelling pus. On April 7, 1875, the patient was lifted into the train which took him to Oostakker. From the station he went by omnibus to the Grotto. The driver was very angry because pus and blood from the leg soiled the cushion of his vehicle.

Arrived at the Grotto, De Rudder rested on a seat very much fatigued from his journey, and

suffering considerable annoyance from the carelessness of the passers-by. Suddenly he realized that something was happening; he raised himself quickly and began to walk; then he knelt down and arose unaided. He next proceeded to examine his leg: the leg and foot, which some seconds before had been swollen, had resumed their normal size; the two wounds were cicatrized and the bones were solidly united.

De Rudder then walked without assistance, and without his crutches, to the omnibus which went to Ghent.

The following day, April 8, Dr. Affenaer came to visit him. He examined the limb, verified the cure of the wounds, and stated that the internal aspect of the tibia was quite smooth at the site of the fracture, which was consolidated. De Rudder was able to walk without the slightest lameness.

After his cure he lived twenty-three years, working on the land until his death from pneumonia in his seventy-fifth year.

Dr. van Hoestenberghe exhumed the body of De Rudder, and removed the bones of both legs, which are now in the possession of the Bishop of Bruges. Here is the result of the examination which I have copied from the work of Dr. Deschamps:

I. The two tibiæ are of precisely the same length despite the elimination of a small piece of bone.

II. The superior fragments of the tibia and fibula are displaced in the antero-posterior direction, riding backwards on the lower fragments. But as a whole the

PHOTOGRAPH OF THE LEGS OF DE RUDDER

Taken during his life.

The two limbs were quite straight ; the gait was normal ; the cure was perfect.

PHOTOGRAPHS OF THE BONES OF DE RUDDER

Bones of the normal right leg are represented for comparison with those of the fractured limb.

LEFT.—External aspect; the axes of the superior and inferior fragments are in continuity with each other; deformity is seen at the site of fracture.

RIGHT.—Posterior aspect; the superior fragment is inclined from above downwards, and from without inwards.

Examination of the bone shows that a vertical line dropped from the posterior insertion of the crucial ligament falls at about the centre of the lower extremity of the tibia. The correction is sufficient.

The salient caused by the fracture posteriorly is very marked. The fact of the fracture is certain.

vertical axis of the left leg is in complete alignment with the axis of the right.

The transmission of the body weight is then made as normally on the left as on the right side, and the displacement makes no interference with the gait.

Hanging freely for more than eight years, the superior fragments of the two bones had been drawn backwards by the powerful posterior muscles of the thigh, and in consequence had taken a position slightly posterior to the normal. This is noticeable at the articulation of the head of the fibula with the tibia. This surface worn by the abnormal movements has become twice as large on the left as on the right side. As a result of the displacement the abnormal direction of the superior fragments is corrected by the position of the lower fragments, and the axis of the limb is normal, as we have said.

III. The displacement necessarily caused two projections of the tibia : the one in front is that of the lower fragment, posteriorly that of the upper. The anterior projection is rounded; if it had been angular it would have caused permanent ulceration of the skin. The posterior projection is very prominent and angular, but it is lost in the muscles of the calf, and causes no inconvenience. In addition, Pierre De Rudder never experienced any pain or trouble of any sort at the site of the fracture, from the time of the cure to the end of his life.

§

A Detailed Study of the Consolidation.

It is necessary to study this fracture in the case of De Rudder to understand how it is opposed to a natural cure.

When Dr. Verriest examined the fracture three months before the cure, he stated that there was a separation of 3 centimetres between the two

fragments. In the centre of the suppurating wound the two bony fragments could be seen; they were blackened and necrosed.

The abnormal mobility was so great that the leg could be bent and twisted so that the toes turned backwards and the heel forwards. No apparatus immobilized the fracture, and the general health was exhausted by the suppuration, which had lasted eight years.

To obtain a surgical cure, the elimination of the necrosed ends of the bones would have been necessary either by natural or by surgical means. This elimination would have necessitated considerable time, since the necrosed portions were solidly adherent, and the patient was getting on in years. By the time that the necrosed fragments had separated, the separation of the bony extremities would have been considerable—at least 7 or 8 centimetres, perhaps more, considering the extent of the dead bone.

How was this large osseous cavity to be filled up? The periosteum had long since been destroyed by the suppuration. (Antiseptics were unknown at this time.)

It is difficult, almost impossible, to suppose that the extremities of the osseous trabeculæ could have formed sufficient callus to fill in completely this separation of the bones, even after the lapse of a considerable time. The probability is that there would have been no repair and that the patient would have continued to grow weaker.

Putting things at their best, there could have been only a false joint formed by the ordinary

mechanism; that is to say, fibrous and not osseous tissue reuniting the separated fragments. Even admitting that the fragments could have come in contact and united, there would have been the recognized shortening which it would have been impossible to avoid after such a loss of bone substance.

Yet nothing like this happened. The tibia shows no shortening, the osseous cavity is filled up, and the necrosed fragment is reconstituted in its totality.

Let us inquire now how this callus was formed, and what was the quantity of phosphate of lime necessary for the consolidation of this fracture and the regeneration of the lost fragment.

There exist in the Dupuytren Museum in Paris specimens of fractures with loss of fragments, identical with the fracture of De Rudder, which prove what I am about to state. From the measurements that I have taken of De Rudder's bones, the callus was about 5 centimetres square superficially, and as the result of the separation of the fragments its thickness was considerable. It can be said without exaggeration that the weight of the phosphate of lime necessary to replace the bone lost and to form the callus that filled the gap would be about 5 grammes.

From where was this obtained? When dealing with the physiology of the miraculous (page 24), I pointed out that normally this salt is not found in the blood in a free state. The blood, according to Schmidt, Becquerel, and Rodier—and this is admitted by all physiologists—contains on an

average 1·60 grammes of phosphate of lime. This is less than a third of the weight of the callus in the case of De Rudder.

From where came the other two-thirds? They did not exist in the blood of De Rudder, and there could be no deposit of these salts anywhere in his body. Were they supplied by some unknown natural force? No, for such a force could not find them in the human body.

If we admit that this force has formed the phosphate suddenly, this is to admit creative power. But unbelievers will never admit such a power, for this necessarily implies recognizing the existence of God.

In order to oppose the supernatural character of this cure, De Rudder has been accused of gross deceit. It was said that De Rudder's leg was consolidated when he made his pilgrimage, and that only a small superficial abscess remained under the skin surrounding an insignificant sequestrum, and that the abscess emptied itself and the sequestrum came away at Oostakker.

Those who made such charges do not seem to have realized that the sequestrum in question was formed soon after the fracture, and that it was separated and eliminated with the pus in the months which followed the accident. The sequestrum was an incident of the beginning of the trouble. A later feature was the formation of necrosed bone bathed in pus at the extremities of the fragments, as Drs. Verriest and Hoestenberghe testified. We know very well that these necrosed extremities were not detached, so it is

useless to pretend without the slightest proof that an osseous fragment was eliminated at Oostakker at the moment of the miracle without anyone noticing it.

Others have said that De Rudder was cured before his journey, that he kept his crutches and allowed his leg, which was already cured, to hang pendent in order to deceive people. But the abundant suppuration proves that the wound was not cured. Pus was formed in such quantities that it flowed from the wound and soiled the cushion of the vehicle which took him to the Grotto, to the great annoyance of the driver.

It is impossible to admit that De Rudder wished to deceive with regard to the suppuration, and that he arranged around the limb bandages soaked in old pus, collected for this end, for we know that pus dries up in a very few hours. It must, then, have been recent pus, and its quantity proves that the wound, dressed the evening previously, was very large to furnish sufficient pus to attract the notice of the driver and of the other travellers.

We are forced to admit that the witnesses were correct in saying that at the moment of his departure the abnormal mobility and the suppuration were the same as at the last visit of the doctor, and that there was no deception on the part of De Rudder.

A feature of De Rudder's cure, to which, it seems, not sufficient attention has been drawn, is the instantaneous return of all the physiological functions. A suppurating fracture left to itself,

not treated with well-made apparatus and very carefully watched, will most certainly develop grave deformities. The foot will fall forward, the muscles will atrophy, and the tendons will contract adhesions to their sheaths. All these conditions give rise to grave functional trouble which can only be remedied by long treatment, massage, hydrotherapy, electricity, etc. If the adhesions are very old and chronic, as was the case with De Rudder, they become permanent, and the patient cannot walk without considerable lameness. Practically, if the muscles remain atrophied and degenerate through functional disuse for some years, the return of contractility and voluntary movement never occurs.

In De Rudder's illness all these bad conditions existed. By the process of natural cure he was destined to remain crippled, as clinicians have observed happens to others, subject to the same unfortunate circumstances. But, on the contrary, nothing of this occurred. As soon as he was cured he walked briskly and ran, and almost immediately took up his work as a wood-cutter. This is a most extraordinary circumstance, and it is in harmony with the other facts of his supernatural cure.

I add a small fact which is of interest, and shows that God does not always work a miracle in its totality for the sick person. De Rudder had lost by suppuration the extensor tendon of the great toe, which he called "a piece of cord." This tendon was not re-formed, and we read in the notes that the great toe remained immobile.

This was of little importance, for his gait was unimpaired. I note this fact because I do not wish to conceal anything in this extraordinary case, which in its method of cure is beyond medical explanation, and could only come about supernaturally.

SUPPURATING FRACTURE

A Comparison with that of De Rudder.

I may be permitted to note here a case which shows clearly how different was the case of De Rudder compared with the ordinary surgical cure. The war brought under my care in St. Joseph's Hospital, Paris, a wounded man whose condition closely resembled that of De Rudder. Guel . . . , 24 years of age, was wounded, about the middle of November 1914, by a rifle shot which severely damaged the upper extremity of the left tibia without, however, opening the knee-joint. He arrived at the hospital on the tenth day with considerable swelling of the leg. I removed numerous fragments of bone, amounting in all to a weight of 23 grammes. There only remained a thin layer of bone at the posterior surface of the tibia. This thin layer of bone was bathed in pus and considerably inflamed. One day it broke, the superior fragment was carried backwards, and the fracture was complete. The limb was carefully immobilized in a plaster apparatus with handles and numerous drainage tubes inserted to insure the drainage of the pus. Every

day the wound was antiseptically irrigated and a long and careful dressing made.

Six weeks later there could be seen in the wound pieces of blackened and necrosed bone still adherent. I was obliged to remove these fragments with bone forceps, for they showed no tendency to separate, and acted as foreign bodies, hindering bone formation. As a result of this fresh intervention the wound slowly granulated from the bottom to the surface, and there was formed bony callus which in part replaced the loss of substance of the tibia.

The general condition was very grave for the first two months, and then gradually improved, and the repair of the fracture only took place as the general condition improved. This is what we always see clinically, the general condition of health always reacts on the local condition. The wound of the soft parts took four months to close. It left a badly-formed, depressed scar, adherent to the bone. As to the healing of the fracture, this only took place in July 1915—more than eight months after the wound.

My patient was cured by surgical means, with the customary slowness, and as a result of the careful daily dressing and rigorous immobilization. He was a young man of twenty-four, strong, and in good health, and the bones in his case were still developing. With De Rudder the case was totally different; he was a man of fifty-two years, in whom bony development had ceased for twenty-five years. His fracture was not immobilized, and there was no attempt at antiseptic dressings.

He was in the worst possible condition for the cicatrization of the wound and the formation of bony union; in fact, everything was there to hinder the formation of callus.

III. FRACTURE WITHOUT SUPPURATION

Fracture of the femur with overriding of the fragments—no consolidation at the end of three months—sudden union in forty-eight hours.

Margaret Verzier, age eighteen, was under treatment at the asylum of La Teppe (Drôme) for epileptiform attacks (it is important to notice that there was no insanity[1]); she had a fall of 7 metres and fractured her right thigh on April 7, 1909. She was seen immediately by Dr. Tournaire, of Tain (Drôme), who endeavoured, though ineffectually, to immobilize the leg in an apparatus causing continuous extension. The patient was extremely restless, however, and could not bear the immobilizing apparatus. At the end of three months there was overriding of the fragments, a shortening of the thigh amounting to 5 centimetres, and no trace of any consolidation.

Complete and solid union, a lengthening of 2½ centimetres, and walking took place in forty-eight hours—between July 7 and 9, 1909, as is described later.

[1] This note is necessary, for formation of callus has been seen in the cases of insane people in spite of violent movements; but in these cases the consolidation was always progressive and the *time factor* always present.

Five and a half years after the cure had not belied itself. Moreover, since the day of the cure the epileptiform attacks absolutely disappeared. Here is the very definite certificate of Dr. Tournaire, who was treating the patient :

I, the undersigned, Jean Tournaire, doctor in medicine of the faculty of Lyons, declare that I had under my care Mlle Marguerite Verzier, of Lyons, aged 18 years, an inmate of the asylum of La Teppe from March 27th, 1909, and that on the 7th of April, 1909, she fractured her right thigh by a fall from a height of 7 metres.

There was complete fracture of the femur at about the middle with overriding of the fragments, and a shortening of the limb of about 5 centimetres. Extension and counter-extension apparatus were applied immediately, but in vain, for the patient could not be kept still, she having attacks of giddiness and very frequent inco-ordinated movements ; several times the apparatus was reapplied, but to no practical purpose. The employment of Bonnet's splint gave no better results, for the movements of the patient could not be controlled.

The fracture on the 7th of July was in the same condition as on the 7th of April, the day of the accident ; no callus had been formed, there was abnormal mobility, the fragments rode one over the other so that there was shortening of 5 centimetres, and the site of fracture was very painful on palpation.

Now I certify that on the morning of the 9th of July, that is to say hardly 48 hours after my last visit, I saw the patient again, who told me that she had been suddenly cured, and I state that the following was the condition : the fracture had been consolidated, with the formation apparently of very resistant callus, as far as I was permitted to verify. The shortening of the limb

is not more than 2½ centimetres. There is also no pain when extremely strong pressure is made over the site of the fracture.

I made her get out of bed at once, then, leaning on my arm, she made the circuit of the room, limping a little, it is true, but without experiencing any other difficulty; she can move the limb in any direction.

July 24th.—The patient progresses every day; she can walk alone without support, though always with a little lameness, and a slight deviation of the foot outwards.

To sum up, we have here the consolidation of a fracture of the thigh which it appears to me to be impossible to explain medically, and I hope that time will prove the cure to be lasting.

TAIN. DR. TOURNAIRE.

July 24, 1909.

Professor Eugène Vincent, of the faculty of Lyons, late senior surgeon of the Charité, who reported on this case, made the following very judicious reflections:

Before going further, I should like to say that it will not do to label this case as an instantaneous cure of fracture of the femur; this would not be exact.

The fracture dated from three months, a length of time sufficient for natural cure. It is, then, a case of retarded union, of a false joint not yet thoroughly formed. This being said, I now come to the essential points of the certificate.

The affirmations of the doctor treating the case are very definite. On the 7th of July, after three months, the condition of the fracture was practically the same as on the day of the accident, the 7th of April; there was

no callus, persistent abnormal mobility, overriding of the fragments, shortening of 5 centimetres, and pain on palpation. Now, following a fervent Communion and earnest prayers to our Lady of Lourdes, and barely forty-eight hours after, there is a complete change, the callus is formed, and the bone united so strongly that Dr. Tournaire can say that the reunion is very resistant as far as he can verify, the overriding of the fragments has ceased, the limb has elongated 2½ centimetres, all pain has ceased, and the patient, who had been confined to her bed for three months, could make the round of her room and move her limb freely.

Here is, in truth, an extraordinary fact, if it has been correctly reported, and it is impossible to conclude otherwise than did Dr. Tournaire, "that it is impossible to explain from the point of view of medical science." Dr. Vincent continues :

I examined Mlle Verzier on the 11th of November, 1911, that is to say more than two years after her cure. This young girl then had all the appearances of perfect health. There was no trace in her conversation of the slightest intellectual weakness, neither were there any signs of hysteria. Since her cure on the 9th of July, 1909, she has shown no signs of nervous fatigue.

Let us pass to the local condition : as a result of the examination of the limb, I can state that there has been a fracture of the thigh at about the centre. The right femur measures about 38 centimetres in length as compared with 40 to 40½ on the left.

At about 17 centimetres above the interarticular line of the knee the thigh is of greater size on the right than on the left.

This increase of the right side does not show accurately

the thickness of the bone, because the muscles are a little atrophied on that side as a result of the injury.

The condition of the bone can be better estimated by palpation. Palpation made from the middle of the thigh upward makes it evident that the diaphysis is more thickened on the right owing to callus, which is still considerable, and which surrounds the osseous extremities, which override somewhat, because there is at this level some inflexion of the diaphysis inwards.

It is probably an oblique fracture from without inwards and from above downwards at the upper third of the femur. The superior fragment has been drawn inwards by the muscles, and the lower has glided outwards on the superior for a length of 2 or 3 centimetres.

The union is extremely solid. An interesting detail may here be noted: All the movements of the hip are executed easily with the exception of abduction. The patient cannot voluntarily abduct the right limb as well as the left, and when abduction is made with the hand to the extreme limit it produces a slipping of the hip as if there were a tendency of the hip to be dislocated downwards.

Radiography alone can show with exactness the condition of the hip joint and the state of the bone at the level of the fracture. There is nothing extraordinary in the fact that the fall of 7 metres should have caused some lesion at the hip joint. It had also caused some sprain or subluxation at the medio-tarsal joint of the right foot. This lesion was cured, leaving a certain amount of deformity, a turning inwards at the middle of the metatarsus. This trouble, however, does not interfere with the solidity of the plantar arch. The young girl can walk as well and as far as any other person. She only limps very slightly. The real and functional shortening of the limb is only about 2 centimetres.

This examination confirms the fracture of the thigh in the case of Mlle Verzier. It establishes the fact, however, that this fracture has been firmly consolidated, that the overriding has been gripped by the callus for a distance of 2 to 3 centimetres, and that the bone and periosteal thickening are considerable.

But all this does not prove that the consolidation occurred instantly and contrary to ordinary laws.

Have we here a miracle ? My examination does not permit me to say this. The problem is solved by the evidence of the doctor who treated the case, and saw and examined the patient at what might be called the psychological moment. This medical man, who is certainly worthy of belief and esteem, affirms that in the space of 48 hours there was a sudden union of two fragments of bone which up to that time had not been united at all. He also states that the greater part of the overriding, which had caused a shortening of 5 centimetres, also disappeared. Before this very definite statement objections must give way.

A grave question is put before us, a question which all can judge : Is it possible that a false joint could disappear in 48 hours ?

We are obliged to answer No ; moreover, there did not exist any periosteal formation, nor formation of callus between or around the fragments. The fragments were mobile and pointed under the skin, according to the evidence of the witnesses.

The consolidation and the almost instantaneous lessening of the shortening are rendered more difficult by the absence of immobilization and extension. The certificate states that the restlessness of the patient rendered these means of treatment useless.

If, then, everything happened as Dr. Tournaire states, if his observations are exact, and we have—I say it emphatically—no reason to doubt them, then the study

RADIOGRAPH OF THE FEMUR OF MARGUERITE VERZIER

Posterior aspect of fracture.

The callus is very solid, but there is deformity resulting from the absence of immobilization.

RADIOGRAPH OF THE FEMUR OF MARGUERITE VERZIER

External aspect of fracture.

of this case most certainly points to some supernatural force.

We can, then, logically conclude with Dr. Tournaire that the case of Mlle Verzier is a fact that is scientifically inexplicable, and it seems to be parallel to the case of De Rudder.

Dr. Eugène Vincent.

Dr. Vincent also asked Dr. Tournaire for some additional details with regard to the condition of the fracture. Dr. Tournaire replied: "As far as I can remember, for two years have now elapsed, I believe that there was present on July 9 a certain thickening of the shaft of the femur. As to the overriding of the fragments, I could always well distinguish them even up to a couple of evenings before the consolidation of the fracture, that is to say, at my last visit. I believe that the pseudarthrosis showed a slight degree of thickening of the periosteum. It was very difficult to be sure of this, for up to the time of the cure the patient was always restless and very difficult to examine. Palpation was always very painful, causing movements and making the patient cry out."

The radiograph was made two years after the cure. It shows clearly that the fragments override for a distance of 6 to 7 centimetres. It is important to note that the course of the oblique fracture measured 5 centimetres, and the overriding concerned only the extremities of the fragments. If by traction the callus could have been disassociated and the two fragments of bone made to glide upon each other for a distance of

2 centimetres, then the femur would have regained its normal length. The radiograph clearly shows that the real shortening is very small and corresponds with the measurement, and this shows a shortening of 2½ centimetres.

In March 1915, that is to say, five years and eight months after the cure, I received a letter from Dr. Vincent concerning Mlle Verzier : the consolidation of the bone had been perfectly maintained.

I shall add a few remarks to those so ably formulated by Dr. Vincent, in order to emphasize the conclusion that may be drawn from this case of fracture. It is impossible to deny the fact of the fracture. Dr. Tournaire had continuous evidence of it for three months. At each of his visits he noted the abnormal mobility, the shortening, the overriding of the fragments, and the impossibility of the patient tolerating any immobilizing apparatus. The nurses of the asylum, persons used to the care of the sick, stated that the condition was unaltered after the last visit of the doctor on July 7 until the morning of the 9th, when the patient declared herself cured.

The examination made on July 7 by Dr. Tournaire shows that the fracture was not cured ; that is certain, for he felt the movable bony fragments beneath the skin. What thickening there was present was in all probability due to the bone fragments irritating the muscles, and a certain amount of swelling caused by the inflamed periosteum, but there was no sign of any solid callus.

The local pain was caused by the irritation of the soft parts by the movable fragments, for as soon as the fragments were immobilized by the callus, the pain rapidly disappeared. The fracture, then, is certain on July 7. Can it be possibly assumed that on the 7th the callus was already so far formed that it could become sufficiently solid and firm to allow of walking on the 9th ? Most assuredly not, since the mobility was very great, and the callus of a fractured thigh would not permit of walking until at least thirty days after consolidation. Consequently the *time factor* had been absent.

We must also add that a shortening of 3 centimetres had abruptly disappeared, which nothing can explain. All surgeons know that to correct the overriding of the fragments of the femur, extension must be made from the first and continued for a long time ; when it is not made at once there is little success ; how much more would it be impossible to correct this shortening after three months had elapsed without any immobilizing apparatus, unless by a surgical operation ? Here we have a fact which cannot be explained since it was performed in forty-eight hours.

Finally, the cure was a permanent one, testified to by a radiograph made two years after. I close with one remark. This cure, which was not obtained by natural means, was not a *restitutio ad integrum*, for there remained some deformity of the femur. The irregularity of the callus is in a way the signature of the miraculous, since it

proves that a severe fracture really did exist. It must be noted that this patient was not insane, and so her cure must not be compared with those we see occurring in the insane.

IV. TUBERCULOSIS OF THE VERTEBRÆ

Hip Disease, and Generalized Tuberculous Infection

All that I have said about the callus of fractures is applicable to the cure of tuberculous caries of the vertebral column. Here is a typical example in the case of a patient who was under my treatment in St. Joseph's Hospital, Paris, and who was suddenly cured at Lourdes :

Gabrielle Durand: father and mother living, brother died of tuberculosis at the age of thirty-six; one of her married sisters lost two children with tuberculous meningitis. As a child she was sickly. She had scrofulous keratitis of the left eye, which left a slight opacity. There was osseous suppuration in several places on the cranium, and the scars are to be seen adherent to the bone. A number of the cervical glands were enlarged. At the age of four she had an attack of diphtheria, which caused an abscess in the neck. At the age of eighteen she was admitted to the hospital for the tuberculous at Villepinte, where she had violent hæmoptysis, and cold abscesses of the back and arm and both hips. She remained there from 1905 to 1906. At the

age of nineteen, in 1906, she entered St. Joseph's Hospital, in the tuberculous wards. The admission card states, "Pulmonary Tuberculosis of the second degree."

In January 1907 she was transferred to my care on the surgical side for constant pain in the vertebral column. I diagnosed the commencement of Pott's disease, characterized by constant pain over the spines of the second and third lumbar vertebræ, and the impossibility of executing movements of flexion, extension, and also lateral movements without causing suffering.

Pain could also be elicited by pressing the abdomen at the level of the lumbar vertebræ. A plaster corset was applied. Two months later, in March, a psoas abscess appeared on the left side, pointing just below Poupart's ligament. This was aspirated and half a litre of tuberculous pus drawn off.

Becoming weaker, she was transported on a stretcher to Lourdes. This very painful journey was without any result, and she again came under my care. In October appeared definite symptoms of hip disease on the left side. I placed her in a plaster splint immobilizing the whole of the body, and she was then conveyed to the hospital of Pau, where she was under the care of Dr. Monod.

In December symptoms of peritonitis showed themselves, the plaster splint was removed and the patient put into a Bonnet's apparatus. June, 1908 : Symptoms of tuberculous meningitis showed themselves, and fever up to 40° C.

The patient recognized no one, and Dr. Monod expected her death. Nevertheless, the patient survived.

In August, for the second time, she was taken to Lourdes in her Bonnet's apparatus, Dr. Monod, giving the following certificate :

" I certify that Mlle Gabrielle Durand was under my care in the hospital at Pau suffering from pulmonary and osseous tuberculosis. She has Pott's and hip disease, for which she has been immobilized for several months in a Bonnet's apparatus. She has frequent hæmoptysis and constant fever."

For four days there was no result. On Sunday, during the procession of the Blessed Sacrament, the patient tried to raise herself in her splint. She felt a great pain in her back and fell back exhausted. She remained unconscious from Sunday evening until Monday at 10 o'clock. She was then carried to the piscina in this state, and, after considerable hesitation, immersed in the water. She was granted a sudden cure.

" I experienced," said the patient, " terrible pain ; it seemed to me that my body was being pounded up. I saw my leg, distorted by the hip disease, turn itself and take up its normal position. Almost mad with joy, I felt that I was freed from all my sufferings, and I began to walk in the piscine."

As a precaution, the patient was replaced in her splint and immediately carried to the Medical Bureau. She was examined there, made to raise herself, to walk, to execute movements of

flexion and extension, and also lateral movements of the vertebral column. Complete freedom of movement had returned. The cure was a manifest one. The patient continued to walk all that day, and returned to Paris seated in the carriage just as the other passengers.

Eight years afterwards (1915) I saw this case in my consulting-room; I examined her with minute care. Her general health was excellent. The pulmonary and osseous tuberculosis had quite disappeared. The vertebral column was quite supple, and could execute movements freely in all directions. The movements of the hip joint which had been attacked with disease were also normal. Her gait was easy and without the slightest lameness. Menstruation was regular. In the left iliac fossa, just below the crural arch, could be seen a white point, which indicated the aspiratory puncture made when she was under my care. Respiration was perfect, the vesicular murmur extending quite to the apices of the lungs. At the roots of the lungs there were some faint indications of hypertrophy of some of the bronchial glands. These, however, did not incommode the patient in the slightest.

I had a radiograph made. It shows the transparence of the pulmonary tissue on the two sides. At the left apex in the first intercostal space is to be seen a faint shadow which is the remains of a healed cavity, scattered through the lungs are some slight shadows indicating, perhaps, healed lesions. In any case, however, no stethoscopic signs are present. The vertebral column is

straight, and no calcareous deposit is to be seen on the vertebral bodies.

About the centre of the third lumbar vertebra is a mark which indicates an osseous lesion. It is very limited in extent. This causes me to conclude that the vertebral lesion was only superficial when she was cured, the bodies of the vertebræ were not very much involved, and so the osseous scarring does not show very definitely. I do not desire to study in detail what has happened with regard to the other viscera, as I have already done that for other patients. I wish only to call attention to the cure of Pott's disease.

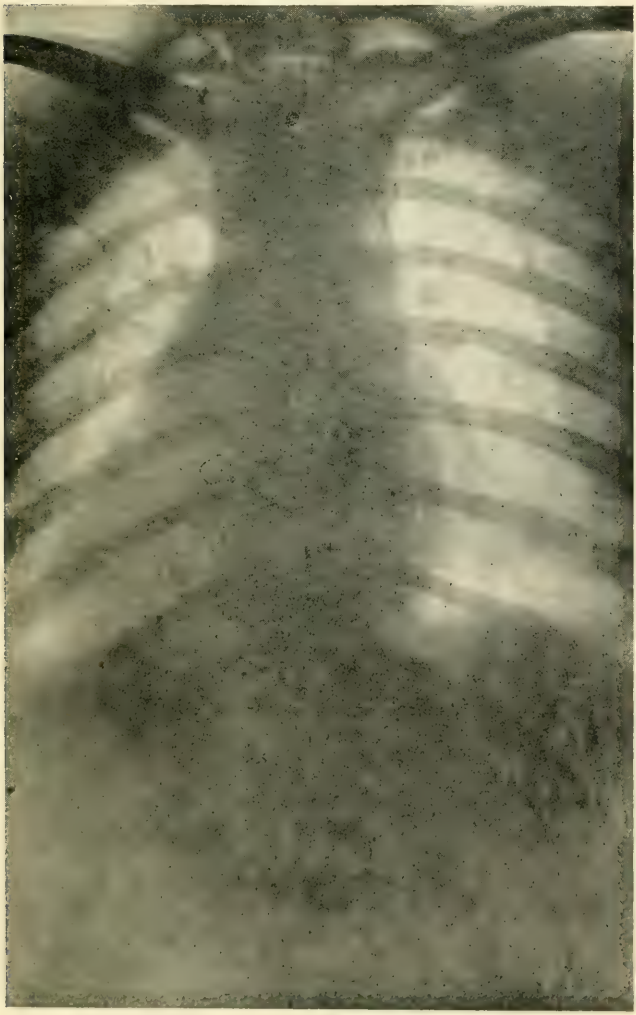
In the chapter on physiology, I explained the mode of cure of vertebral caries. I said that in the case of old disease, with considerable excavation of the vertebræ, there are formed calcareous deposits, taking the form either of stalactites or thick plaques, which replace the bodies of the vertebræ which have disappeared.

In the case of Gabrielle Durand this did not happen. The vertebral suppuration was relatively short, the bodies of the vertebræ had not been destroyed, the abscess was cured by absorption and by a fibrous transformation of the abscess wall. This is why the radiograph shows no calcareous plaque and the vertebral column is quite rectilinear. It was commencing vertebral caries—a very grave condition, on account of her age and the tuberculous condition of the lungs.

I think it would be difficult to find any patient more saturated with tuberculosis than was

RADIOGRAPH OF THE THORAX OF GABRIELLE DURAND

The print is reversed, the left side of the patient being to the reader's left.



At the left apex, between the first and second ribs, below the clavicle, is to be seen a definite shadow which slopes obliquely from above downwards, and from without inwards. This is the scar of an old cavity encrusted with calcareous salts. In the rest of the lungs there are several shadows, on the left two below the fifth rib; on the right, one between the fifth and sixth ribs. These are evidences of healed cavities.

Gabrielle Durand. Tubercle had attacked the lungs, the lymphatic glands, the vertebral column, the peritoneum, and the brain. And all this disappeared suddenly in the bath at Lourdes. To get a better idea of this cure, it will be useful to recapitulate the pathological facts :

1907, January : Appearance of the Pott's disease.
„ March : Formation of abscess containing half a litre of pus.
„ October : Tuberculous hip disease.
„ December : Tuberculous peritonitis.
1908, June : Tuberculous meningitis.
„ August : Sudden cure.

Within twenty months the patient was attacked with four extremely grave forms of tuberculosis, and in spite of the terrible condition of her general health, was instantaneously and radically cured in the worst clinical conditions.

There can be no denial that the tuberculosis of Gabrielle Durand had been certified to by numerous medical men ; and the cure of the vertebral caries and the hip disease cannot be explained naturally.

It was also a genuine cure, as I was able to certify eight years later. August 1916, eight years after her cure, I operated upon Gabrielle Durand for calculous appendicitis. During the course of the operation I was able to ascertain the perfectly normal condition of the peritoneum. There did not exist any trace of old inflammation, there were no pathological adhesions, and no

tuberculous granulations on the intestines, appendix, uterus, ovaries, nor on the parietal peritoneum. The peritonitis had, then, been certainly cured. The appendix contained a large calculus, which was not adherent and left no inflammatory trouble. The peritonitis of 1907 had not been caused by appendicitis, and was most certainly tuberculous.

V. ULCER

Joachine Dehant, aged twenty-nine, of Gesves, in Belgium; at the age of seventeen she was attacked with a sore on the right leg, which degenerated into a chronic ulcer. She had also a deformity of the right hip, and a contraction of the muscles of the leg which fixed the foot in the position of varus. At the age of twenty-nine, the ulcer extended from the knee to the malleolus, covering the outer two-thirds of the right leg, and measuring 32 centimetres in length by 15 in breadth. The base of the ulcer was deep, had a gangrenous appearance, and emitted a terrible odour.

The patient's general health was very bad, and she was much emaciated. On September 6 she was seen in this state by Dr. Froidebise, who gave the following certificate :

I, the undersigned, Gustave Froidebise, doctor of medicine at Ohey, province of Namur, declare that I examined Mlle Joachine Dehant, twenty-nine years, and certify that she has (1) a luxation of the right femur,

(2) a retraction of the muscles of the leg causing club foot, (3) an ulcer covering two-thirds of the outer aspect of the right leg. This ulcer extends from the knee to the external malleolus.

The patient set out for Lourdes on September 10.

This great wound was seen during the journey by the other travellers, who were annoyed with the terrible odour, which was very evident when the dressings were changed, and also on her arrival at Lourdes.

After two baths in the piscina, she was suddenly cured on the 15th and returned on the 19th. In the bath the patient experienced a most violent pain in the leg, the deformity of which was at once rectified. When the dressing was removed the ulcer was found to be healed.

The statements of Dr. Froidebise, of Louvain, were very definite. He declared that he had seen the patient on September 6, four days before her departure; the ulcer was then so large that it extended from the knee to the malleolus. There was also sloughing of the tissues, which gave out a gangrenous odour.

On September 19 Dr. Froidebise again saw the patient, and stated that the wound was entirely cicatrized.

One of the companions of her journey, Leonie Dorval, accompanied Joachine Dehant to the piscine. She had assisted at the dressing of the wound during the journey of September 11 and 12, and had seen its repulsive condition. She removed the bandage at the close of the bath

on the 15th, and attested the cure. She remarked that the skin was " all marbled, blue and red," and that it became white later by degrees.

This statement is interesting, for it is what we see in all cases of large wounds. The skin that is re-formed is very thin to start with, then it gradually thickens and bleaches slowly. This conforms exactly with what Professor Duret stated, and is a fact to which I called attention before, that in the supernatural cure we often see the tissues regenerate themselves in the normal manner, but with a rapidity that is never met with in the natural cure.

Physiologically speaking, this is what constitutes the supernatural cure. It is easy to show that in this case we are confronted with an exact surgical description, and also with the conditions which we have said are necessary to prove a supernatural cure.

I. The clinical description given by Drs. Froidebise and Manrique, who observed the lesion and the subsequent scarring, is definite proof of the ulcer.

The following certificate of the cure was given by Dr. Froidebise on September 19, 1878, on the return of the patient : " I declare that I have examined Mlle Joachine Dehant, living at Gesves, and certify that the lesions mentioned in my first certificate (of September 6, 1878) have completely disappeared. A simple redness of skin indicates the site of the ulcer."

Dr. Manrique, the patient's doctor, confirmed the certificate of Dr. Froidebise, who had seen

the ulcer four days before her departure, that is to say, nine days before the cure.

II. The accounts of witnesses who can be relied upon have been collected with all the necessary precautions. An inquiry was made during September and October 1893 by Dr. Royer; M. Deploige, Professor of Canon Law at Louvain; M. Legrand, advocate of Namur; M. Poncelet, advocate of Arlon, and Dr. Eischen. Their inquiry was limited to verifying two things: (*a*) Did the wound exist at her departure; (*b*) was the wound suddenly cured at Lourdes.

They eliminated the evidence of the parents or relations of the patient and admitted only that of strangers. All these witnesses were interrogated at their own homes, without having previously been notified, and without being able to consult together.

They carefully read through their written declarations, and declared that they were correct and true. These witnesses were sixteen in number: six neighbours, of Gesves, in Belgium; seven people who were companions on the journey; the three proprietors of the Hôtel Latapie at Lourdes.

III. *The absence of the time factor.* To cure lesions so chronic as this, a considerable time is necessary. The cure, however, was rapid, and *the time factor* manifestly lacking.

How different this case is from those we see in our ordinary experience! We can better understand if we examine the normal healing process. The treatment of ulcers is extremely

tedious. The limb must be immobilized, elevated to avoid blood stasis, and there must be absolute rest in bed. When the wound is progressing favourably it becomes covered with healthy granulations, and cicatrization commences at the edges of the wound, which is gradually covered by healthy epidermis advancing from the periphery towards the centre.

To procure cicatrization in the case of a wound measuring 30 centimetres in length, some months of treatment would be necessary, and it is extremely doubtful if it would be obtained even then. Now, the history of the patient shows us that nothing like this happened. The patient was on a journey. Her leg was so bent that it was in a very bad condition for the free circulation of the blood. The dressings of the wound were done seldom, and then very perfunctorily on account of the railway journey. All the worst possible conditions for the healing of this immense ulcer were present in this case. Yet the patient was cured.

IV. We have, in addition, the proof that this was no transient cure. Dr. Manrique, of Gesves, attested in October 1893 that the patient had remained perfectly cured for fifteen years. Here we have the confirmation of the cure by lapse of time, which I have noted as necessary to eliminate false cures. Fifteen years is surely long enough to satisfy the most exigent.

I do not think I shall be contradicted by surgeons when I say that the permanent cure of these immense ulcers is almost impossible, for, if

once healed, they nearly always break down. This is a fact of such common experience that these patients are considered as chronic cases, and treated in institutions for the incurable. In the case of Joachine Dehant there was not a simple ulcer; there had been definite sloughing of the tissues, and there was also joint displacement.

I do not suppose that any experienced clinician would uphold the thesis that this immense ulcer was hysterical in origin, and that it was cured by suggestion, as was the case with the Demoiselle Coirin, of whom Charcot speaks in his work on faith-healing.

Charcot himself proves the contrary, for he demonstrated that to cure the functional paralysis of vaso-motor nerves of hysterical origin, and causing ulceration, a definite length of time was necessary. Here it is obvious that the time did not suffice, and this essential condition was not fulfilled. We are, therefore, perfectly justified in saying that the cure of Joachine Dehant was supernatural.

VI. LUPUS

Dr. Boissarie was witness to the disappearance of a severe tuberculous skin lesion, that of lupus. The cure of this disease, when it is obtained, is extremely slow. This case was the subject of much discussion in April 1905 at Metz. Dr. Boissarie published a pamphlet about it, from which the following facts are culled:

Thérèse Rouchel, fifty-two years, born at Diebling, and living at Metz, was attacked first by lupus when she was forty-two years of age. She was treated successively by Drs. Weiss, of Metz; Maurice, of Arnaville; Bar, of Goire; Kramer, of St. Julien, and Reiss.

In 1895 she was under the care of Dr. Ernst, at the public dispensary, who sent her to Dr. Bender, a specialist for diseases of the skin. The latter witnessed the spread of the lupus in the interior of the mouth, and made some cauterizations with the hot iron. Mme Rouchel then consulted another specialist, Dr. Muller, who confirmed the diagnosis, and made use of the same treatment without obtaining any amelioration.

It must be well understood that all the doctors had thought of the possibility of specific trouble, and had prescribed preparations of mercury and the iodides. Nothing, however, modified the progress of the disease. During the six months which preceded the patient's journey to Lourdes, no medical man was consulted and no treatment used.

On September 4, 1903, the patient came to Lourdes in the following state: the lupus involved the nose, the upper lip, the right cheek, the internal aspect of the cheek, and the soft palate. All these lesions were seen by the patient's medical adviser, Dr. Ernst, who gave a certificate, of which the following is an extract:

I saw Mme Rouchel for the first time in the public

dispensary during 1895, and I certify that she was attacked by a lupus of the face, involving mainly the nose and upper lip.

All the remedies employed (iodide of potassium, cauterization, etc.) have failed to arrest the evil. Moreover, the remedies of Dr. Bender, the specialist to whom I sent her, viz., curetting, cauterization, etc., were all useless.

In the course of the year 1899 the palate became perforated, and in 1901 the same occurred in the right cheek. Eleven days before her departure for Lourdes, in September 1903, on account of the deformity of the face, the patient presented a pitiable appearance.

Two perforations existed, one in the centre of the right cheek, having a conical form, larger on the internal than on the external aspect, and about the calibre of a finger. The other was in the soft palate at its junction with the hard. It was 2 centimetres long and ½ centimetre in breadth. All these ulcerations suppurated and emitted a terrible odour, which much annoyed people in her vicinity. These two perforations had existed for about two years. In addition to internal medication, cauterization had been tried without success.

Dr. Ernst, who had had the patient under his care for nine years at the public dispensary, examined her eleven days before her journey to Lourdes and gave the certificate reproduced above, detailing all the lesions, the ulceration of the nose, both interior and exterior, the upper lip, the right cheek and the palate. At the junction of the soft

and hard palates, there was a perforation, and another near the angle of the mouth, about 3 centimetres away on the right cheek. The nose and upper lip were much ulcerated and covered with foul pus.

Feeding was very difficult, because fluids flowed into the nose through the perforation in the soft palate, and they also flowed out of the mouth through the opening in the cheek. The patient was obliged to stop this opening by means of a plug of wool.

Thérèse Rouchel made the journey from Metz to Lourdes with a sister of the Maternity of Metz, who took charge of the dressings during the journey and at Lourdes.

On September 5, 1903, the sister at eight o'clock dressed the wounds, and remarked that there was not the slightest sign of any improvement. In her account, which she committed to writing, the sister definitely stated that at this hour there was in the right cheek an aperture large enough to admit a finger. Into this she inserted a plug of wool from the interior of the mouth, because the opening was larger on this side than exteriorly. She also noticed that the perforation in the palate was surrounded by a thickened and suppurating edge. The vault of the palate was covered with fleshy granulations. The breath had an offensive smell.

The same day, at about half-past one, another religious attached to the hospital at Lourdes dressed the ulceration and noticed that the condition was unchanged.

Three hours later, at the close of the procession, about five o'clock, the bandage which secured the external dressing fell off impregnated with pus. The patient replaced it, returned to the hospital, and asked the sister of the maternity to reapply the bandage. The sister, to her great surprise, noticed that the perforations both in the cheek and in the palate were closed and the ulceration healed.

Immediately several people who had made the journey with the patient, and an Englishwoman present at the hospital, testified to both the cure of the cheek and the palate.

The following day, September 6, Dr. Boissarie, in the company of several Belgian and French medical men, and also two *internes* of Lille, examined Mme Rouchel at the Medical Bureau. The aperture in the cheek was replaced by a solid scar. There remained only a slight redness of about the size of a lentil. The palate was restored and there was no trace of suppuration.

The trouble had not totally disappeared, for there remained a very slight ulceration on the internal aspect of the upper lip. The patient knew this, and she had sufficient faith to say in her prayers to the Blessed Virgin: "What remains of my illness is not visible, and it does not cause me any pain. Leave it to me always; I shall be content because it will be proof of the terrible malady of which you have cured me."

On her return to Metz, Mme Rouchel presented

herself to Dr. Ernst, who gave her the following certificate:

I saw Mme Rouchel five days after her return from Lourdes. A complete change had been produced: the redness had disappeared almost entirely. The perforations of the palate and cheek were closed. Externally there only remained a slight red stain of about the size of a lentil.

The lip, on which there had been the largest amount of ulceration, was covered with a healthy-looking scab. The swelling had subsided to the extent of two-thirds. Of the ulceration there remained hardly any trace. On the margins of the old inflammatory area appeared some cicatricial nodes. This very marked amelioration, which could almost be called a cure, has been maintained. It is impossible to explain this change, effected in so short a time, naturally.

This undeniable cure produced great astonishment amongst the medical profession at Metz. The Medical Society of Metz, which was composed of Catholic, Protestant, and Jewish doctors, many of whom knew the case, discussed it at the meetings of March 9, 23, 25, and April 10 and 19. Unfortunately, I have been unable to obtain a verbatim account of these meetings, which would be necessary to reproduce the discussion, which mainly concerned the differential diagnosis between lupus and syphilitic ulceration. It would be interesting to have these details, for it would demonstrate that the nature of the ulcerations had no influence upon the cure, and that the miracle was as evident in the one case as the other. There was agreement on the existence of

the two perforations. It was also realized that the cure was not absolutely complete. This is what Mme Rouchel had herself asked for.

There was divergence of opinion on the nature of the ulceration, but it was agreed that the amelioration obtained might have been caused by natural means.

Dr. Boissarie was courteously invited to present a report on this miracle. This report, which has been published,[1] does not contain all the discussions, and only gives a short résumé ; but it shows most clearly the method of discussion of those who reject the miraculous, and how they systematically put on one side the important fact of the instantaneity of the closure of the perforations.

Dr. Muller, a skin specialist who had treated the patient, sustained the following thesis : the lupus not being cured, he did not concern himself with that. As to the perforations, they *must* have been of a specific nature, and twelve days would have been sufficient to obtain their closure under intensive treatment.

As it was objected to him that no doctor had prescribed any treatment of this kind, and that the patient herself emphatically maintained that she had had no medical treatment, he said she *must* have consulted some quacks who were aware of the treatment that medical men would have given. Basing all his arguments on this supposition, for which there was *not the shadow of a proof*,

[1] Boissarie : *Rapport sur la maladie et la guérison de Mme Rouchel, Metz.* Lorraine, 1905

he rejected the supernatural character of this cure. The arguments of Dr. Muller would have been much stronger if he had proved the existence of this intensive treatment instead of imagining it. Our confrère seems to have fallen into the error, which has been noted in those adversaries of ours, who are so prejudiced against the supernatural that, rather than recognize it, they imagine some hypothesis, and finally end by taking their hypothesis for a reality.

All the efforts of Dr. Boissarie were useless to persuade him that the two infirmarian sisters and several other persons had seen the perforations a few hours before. He rejected also the evidence of those who did the dressings. He maintained that they must have been deceived, and that the treatment was carried out during the journey.

In reading the extraordinary arguments of Dr. Muller, based solely on a hypothesis, and which closed with the dogmatic statement that "it was possible for Mme Rouchel to be cured in twelve days," it is difficult to avoid the following reflections: Dr. Muller was the very specialist who, after Dr. Bender, had charge of Mme Rouchel before her departure for Lourdes; why, then, did not he apply this intensive treatment of which he speaks? If this treatment was not then known, Dr. Muller cannot be blamed for not having used it. At the same time, the patient could not have been cured by anyone else using this treatment, as he affirmed.[1]

[1] Note, the date was 1903, and Erlich introduced 606 (salvarsan) in 1909.—Trs.

If this treatment was known and Dr. Muller did not use it, then it might be asked why did Dr. Ernst show such confidence in him as to send Mme Rouchel to him for his advice?

I do not hesitate to adopt the conclusions of Dr. Boissarie; the two perforations existed unchanged as to size three hours before the cure, and they were in the condition described by Dr. Ernst at the time of her departure from Metz.

The infirmarians who dressed the wound at Lourdes, and the other witnesses who saw the case, possess all the necessary guarantees of veracity which I mentioned as sufficient in the case of non-medical witnesses. I even believe that if these witnesses had favoured our opponents, they would not have been rejected without examination.

Whatever may have been the cause of the ulceration—whether lupus, as some thought, or syphilis, as Dr. Muller considered—it is certain that no specific treatment had been applied, and the trouble was at its height at the time of her arrival at Lourdes; she certainly could not have been cured so rapidly without any treatment. I maintain also that if the treatment of Dr. Muller could replace the loss of substance in twelve days, it certainly could not have done so between the hours of half-past one and five o'clock in the afternoon, as actually took place, but would have taken place progressively.

We see, then, that the *time factor* was lacking in this case over and above the other circumstances, and that the cure of Mme Rouchel could not have been due to natural causes.

VII. CLUB FEET

Here is an extraordinary cure, described by the father of the child, Dr. Aumaître, of Nantes:

In 1894, little Yvonne Aumaître, my third daughter, was born at Gourmalon, near Pornic (Loire-Inférieure).

What was my grief when I discovered that the little one had arrived in the world with a terrible infirmity: both feet deformed, two club feet. I was doubly grieved both as father and doctor; I knew how science is often powerless to cure this infirmity, and I said to myself that my child would never be cured. It was necessary for the first few days to conceal this fact from my wife; when at last it was necessary to tell her, we both wept together on seeing the state of our dear little one. We loved her more because she was not as the others, and all that could possibly be done we did.

Several medical men amongst my friends examined her, each gave his advice, but all agreed that the case would be a long one; they hoped that later she would be able to walk.

All these opinions left us very sad, uncertain as to the result, and thinking that for her whole life our child would be lame.

Those were long days and nights that we passed with these sad thoughts; what a capacity for sorrow there is in the hearts of parents!

After advice, and when the child was about fifteen months old, we decided to have her operated upon by my good friend Dr. Boifin, of Nantes.

The little one was chloroformed, and experiencing considerable emotion, we were present at the operation, which consisted in tenotomy of the tendo Achillis, to endeavour to redress the position of the feet. The

operation was very easily performed, but it was necessary to put on two jointed splints reaching as high as the thigh, in order to maintain the position of the feet and legs.

The knees participated in the deviation of the feet, and the limbs of the child turned like those of a marionette.

The splints caused no improvement; moreover, their result was not good: they caused fatigue, and in consequence the thighs and legs commenced to waste. To remedy this wasting I took my little daughter to Dr. Saquet, of Nantes, who gave her scientific massage.

At this time I had made for her boots with wooden soles, to the external side of which were fastened two iron rods to correct the position of the feet.

In spite of this apparatus, and of the fact that the child was firmly held on both sides by the hands, she could not stand for any length of time, and she dragged her feet along on the outer side. It was impossible for her to make one step alone because her legs turned under her. She was in this condition when I took her to the Medical Bureau at Lourdes, where she arrived on June 24, 1896.

After having sought the help of science, we now came to prostrate ourselves at the feet of our Lady of Lourdes, and to ask a cure, which was our one thought and aspiration every day. On the day that we arrived, with what faith and emotion we went to the Grotto, and as we prayed, our tears fell silently.

On the following day the first bath in the piscine took place. After having received Holy Communion and assisted at Mass, we determined to bathe the child in the miraculous water. Oh! that Mass at the Crypt, with what piety we assisted, and how fervently we prayed! How moved we felt to demand this great grace. At the close of the Mass we went to the Grotto; I remained

there praying whilst my wife and the nurse carried the child to the piscines.

At the first bath the child cried and struggled; the second bath took place in the evening. No improvement took place as a result of the first two baths.

Dr. Boissarie saw little Yvonne walk in her wretched fashion, held up by her mother and the nurse, her feeble legs continually doubling up underneath her.

On the morning of the 26th, after her third bath, Yvonne began to walk by herself with a stability which could not have been more complete in the case of a normal child, making her first steps in a state of perfect equilibrium. The instantaneousness of the result gave to this fact a very special interest. We were all overcome by emotion, and my father-in-law, M. P——, formerly President of the Tribunal of Commerce at Nantes, was profoundly moved.

We did not hesitate to recognize that a special grace had been obtained at the Grotto of Lourdes.

That day Dr. Boissarie saw the child walk alone several times. On the morning of the 27th, after the Mass, the child was bathed again in the piscine, then at the Medical Bureau Dr. Boissarie made her walk alone, after having removed the iron supports. The wooden soles then acted only as ordinary shoes. The knees as well as the legs had obtained their normal movements.

To sum up, here is an infant with double club foot, with considerable wasting of the muscles of both legs, with the ligaments of the knees relaxed, operated on at fifteen months without result, and in whom massage had produced practically no good, suddenly attaining her balance, walking with the same stability as other children of her age and using and placing her feet quite normally. This child, whom my confrères said would not walk for several years, suddenly at the age of twenty-

two months walks as if she had always done so since the normal age.

A point that I wish to emphasize is this : my child was not yet two years old, and instantaneously she attained perfect equilibrium and was able to walk ; this is very difficult to explain from a scientific point of view.

The will to walk, suggestion, faith healing, imagination, all are absent. The various theories about suggestion all fail here. At this age a child cannot be hypnotized. Here the only thing to do is to bow before the evidence of the facts without being able to explain them, and to realize simply how great is the power of our Lady of Lourdes, and how wonderful are the graces obtained by her intercession. In describing this case which touches me so closely, I have desired to take my share in thanking and making known our Lady of Lourdes.

(Signed) Dr. AUMAÎTRE.

LOURDES.
June 27, 1896.

I do not think that anyone can call in doubt the reality of this cure. Dr. Aumaître has written his account of this case in due medical form. The truth of his account has never been contested either by the operating surgeon, Dr. Boifin, nor by the numerous medical men whom the anxious father had consulted.

The failure of the operation was mainly due to the very atrophied condition of the muscles of the legs and thighs, which were incapable of carrying out their normal functions of being the active supports of the articulations. This undeveloped condition of the muscles rendered yet more striking the supernatural character of the cure. All that could be done surgically had been done

—tenotomy, the wearing of splints, scientific massage—and all without success.

This is definite proof that at the time of birth the muscles were incompletely developed.

At the moment of the miracle two things took place: the permanent adjustment of the articular surfaces, which were abnormal on account of the maldevelopment, and the development of muscles which were atrophied.

I quite admit that it is possible for the surgeon, by means of an operation, to adjust quickly the articular surfaces and put them in good position, but this adjustment must be maintained, by some means, for a certain length of time, otherwise the deformity recurs and the operation is useless.

It is another thing also when the muscles are atrophied. In such a case, after the operation, a long treatment by massage is necessary in order to regenerate the muscles without which walking would always be defective.

We know perfectly that the red muscles can be regenerated, by new muscle fibres being formed amongst the old ones. But this formation can only be slow, and this is why the important post-operative treatment is always very tedious.

In the case of the little Yvonne Aumaître, the muscles were re-formed in their totality, with such instantaneity that the child could walk immediately, and acquired an equilibrium equal to that of a child that makes its first steps.

To sum up, it is absolutely certain that this

child had a deformity which resisted the most skilful and methodical treatment, and neither cold water nor radio-activity could have restored to the muscles their contractility and their other physiological properties. There is no natural force which is capable of regenerating muscles which do not exist. Consequently, this cure presents all the characters of the supernatural.

VIII. TUBERCULOUS PERITONITIS, WITH INTESTINAL PERFORATION

This is the case of a medical student of Lille, who in 1904 was under the care of Dr. Desplats, professor of clinical medicine in the Catholic faculty, and the complete record of whose case was published in the *Journal of Medical Science* of Lille, August 26, 1905, No. 34. The following notes are textually copied from this journal:

In 1902 M. D——, who belonged to a large family, of whom all the members had good health, began his first year of medical studies, during which time he kept well. In 1903 he commenced his military service, and still remained in good health.

At the beginning of 1904 he had some intestinal trouble, which took the form of muco-membranous enteritis. About March pain and swelling of the abdomen suggested tuberculous peritonitis. This diagnosis was quickly confirmed by the rapid development of ascites and the other

characteristic symptoms. Laparotomy was proposed, and performed in a nursing home on March 19, 1904. As much as 10 to 12 litres of fluid were evacuated, and according to the statement of the surgeon, "during the course of the operation numerous tubercles were seen on the peritoneum and on the intestines, and there were many intestinal adhesions."

The operation wound itself did well, union took place by first intention, and on the nineteenth day the patient was fit to go home. Shortly after this, however, there was some peritoneal reaction, and on April 14 and the following days there was high fever and pain. Little by little this quieted down, and he was able to eat as he was advised.

The notes taken by the doctor who had charge of the case show that the patient was very weak, and that he suffered from colic and obstinate constipation. There was also slight elevation of the temperature at night, accompanied by abundant sweats. From May 10 an injection of morphia was necessary each evening. About this time the pain increased considerably and the abdomen became much swollen, whilst at the same time a part of the scar thinned considerably.

On May 22, 1904, the pain became suddenly intolerable, and was accompanied for two days by bilious vomiting. On May 25 the scar yielded at the thinned spot and the pain diminished. Through the opening was discharged a great quantity of foul pus mixed with fæcal matter.

It was at this time that M. D—— was seen

by a Dunkerque doctor, who gave a certificate which said :

"M. D—— is in a deplorable condition, pulse 120, temperature 39° C. The abdomen shows a red scar extending from the umbilicus to the pubes. At the upper extremity of this scar there is a large fistula which allows the escape of gas and intestinal matter, which appear to come from the small intestine. The abdomen is tender, retracted without bosses, the liver is enormous, descending five fingers' breadths below the costal margin, and is tender on pressure. The spleen is also considerably enlarged, and its lower limit can be easily felt with the hand."

This certificate given by the consultant seemed to point to a fatal termination within a short time. There were, however, several slight remissions. During one of these the patient got up and endeavoured to go out. The following day the pain increased very much, and the discharge of pus and fæcal matter was extremely abundant.

Subsequently he did not go out again until his departure for Lourdes. At the commencement of July, for three or four days he had the idea that a cure was commencing ; the fistula closed and did not discharge gas or matter, but this state did not last, for the doctor perceived at the bottom of the wound a large round worm, whose body stopped up the fistula. After this gas and matter did not cease to be discharged from the fistula, necessitating four, five, or six dressings in the twenty-four hours.

On August 28 the patient set out. It was

very important that his condition should be accurately determined on that day, and I neglected nothing to define it accurately.

M. D—— was a little stronger than he had been. He took during the day two or three eggs, a little milk (not half a litre), some white wine, malaga, champagne (a small quantity), some biscuits, and a little spiced bread with some preserve, and sucked a little meat. His pains were somewhat less, but on the eve of his departure an injection of morphia had to be given him. For a month he had had no spontaneous movement of the bowels, and injections were always necessary in order to obtain an evacuation. The fistula constantly passed gas and very foul matter, and needed dressing three or four times in the day.

During the three or four days that preceded his departure, M. D——, who had got up solely for the necessities of nature, or to lie on his reclining chair, tried to walk round his room, and to remain a short time standing. This experiment satisfied him, and he departed full of hope on August 28 at 7.30 in the morning.

The journey to the station, which lasted but a quarter of an hour, fatigued him very much. He went on the train at Dunkerque full of pain, at once laid down, and did not get up for the remainder of the journey, which lasted thirty-six hours. For nourishment during the journey he had a little wine, milk, eggs, and sucked a little meat. As he could not be given injections, there was no movement of the bowels. A gramme of chloral was given, which procured him some

sleep. During the journey the dressing was renewed four times.

On arriving at Lourdes he was removed in a stretcher, on account of his feebleness, and injections given him to cause a stool. His meal in the evening consisted of some sucked meat, biscuits, and wine. He slept for ten hours, during which time there was profuse sweating. He was carried to the Grotto, and a little later immersed in the piscine; afterwards he was given an egg and a glass of milk, and he rested until it was time for the procession of the Blessed Sacrament, at which he assisted in a wheeled carriage, in which he could recline at length. Joltings and shocks were very painful to him.

The second and third days passed as the first: the patient took part in the religious exercises, but no apparent change was produced. The dressings were regularly changed and found soiled with fæcal matter. The patient could both feel and hear the passage of gas with the fæcal matter, and this always caused pain.

On the last day, September 1, during the procession, M. D—— felt severe pain in the abdomen as if he were being squeezed in a vice. At the same time he had the conviction that something extraordinary was happening and that he was being cured. In a low voice he told his mother, who wept with emotion but made no further manifestation. Here is the account that M. D—— himself gave of his cure:

After the procession, I asked that I might be conducted

to the Grotto to give thanks to Our Blessed Lady. I was in the little wheeled carriage, but the joltings now caused me no pain. Re-entering the villa where I was lodging, I examined the dressing and was glad to find that it was only a little soiled. This was the last time that I saw any trace of fæcal matter. What hindered me from going to the Medical Bureau at this time was the fear that my condition was the result of emotion and would not last.

From this time M. D—— had no more pain. In the evening he ate a beefsteak, on the following day ham, bread, and some fruit. The following night he slept eight hours and had no night sweats; on waking he had a stool without previous injection, and since that time he has eaten and digested ordinary food, and there has been no need for laxatives or other measures.

As to the fistula, since the procession of September 1, neither gas nor fæcal matter was passed, and on the dressing, which consisted only of a square of lint moistened with Lourdes water, there was never anything more than a slight serous staining.

The return journey was effected under favourable conditions, for M. D—— had no more pain. So far he had only spoken of his cure to his aunt and to his mother, and even the directors of the pilgrimage were not informed. Arriving home on September 3, he went to Mass on the Sunday. It was only on Monday, the 5th, that he went to see his doctor, who could find nothing abnormal in the condition of the abdomen on palpation, and noted only the presence of a small fistula.

The return of strength was rapid to such a degree that by September 10 he was able to go on a journey through Belgium and Holland. After that time his health was excellent, and he was able to continue his medical studies in the course of the same year.

I have in my possession the certificates of the consultant who diagnosed tuberculous peritonitis, and also that of the surgeon who operated. In addition, I have the statement of the doctor of Dunkerque who had seen at the end of May the great enlargement of the liver and the spleen, the presence of the fistula, and whose prognosis was that of a speedy and fatal termination of the malady. I possess also the statement of this same doctor who, on M. D—— returning from Lourdes, examined him afresh, and the following is his description :

I did not see M. D—— immediately before his departure for Lourdes, but I knew from his parents that he had been advised not to undertake the journey on account of the precarious state of his health.

For my own part I always believed that he would not survive it. When he returned and came to see me the fistula only discharged a little serous fluid, such as one sees in wounds that are closing. His general state, too, was most satisfactory. I can affirm also that when I saw him with Dr. B—— before his journey, his liver reached up to the nipple, and descended below the level of the umbilicus. Between its lower border and the induration in the abdominal wall caused by the fistula there was a painful zone. The liver stretched far to the left side, and the spleen could be delimited, both by percussion and palpation, stretching down a little lower than the

liver. On both sides there existed a venous plexus as is seen in cases of cirrhosis.

When I saw him on his return I searched in vain for this enlargement of the liver and spleen, there was also no venous plexus. I remember perfectly that at the time of my visit with Dr. B—— the diagnosis lay between some trouble of the liver and spleen, and tuberculous peritonitis. There was then no doubt as to the existence and the gravity of the lesions, nor of their rapid and definite cure in the course of a pilgrimage to Lourdes. At the same time we have the evidence of the patient, that cannot be disputed, to the effect that during the procession on September 1 the stercoral fistula closed and all the accompanying troubles disappeared.

This remarkable cure was put before the Medical Society of Lille by Professor Desplats, and discussed by Professor Duret, two clinicians who cannot be suspected of hostility. The following verbatim report of the discussion shows the carefulness and the impartiality of their judgment:

Dr. Duret.—Can the cure be explained without invoking the miraculous? There is one fact which is certainly difficult to explain, and that is the instantaneousness of the cure. We know that opening of the abdomen without any other treatment can cure peritoneal tuberculosis. The air is a powerful physical agent. The cure reported by Dr. Desplats, can it be possibly explained thus?

Dr. Desplats.—I do not think so, for the operation was far from curing the patient. Following the operation the abscess appeared, leaving a fistula which discharged pus continuously, and the signs of tuberculous trouble progressively increased.

Dr. Duret.—This reason, however, will not suffice to

negative the possible good results of the operation, for sometimes a person operated upon recovers, even after having gone downhill for a time. The salient point in this case, and the one to which we should turn our attention, is the instantaneity of the cure; this is what is difficult to explain.

It is obvious with what caution these two excellent clinicians have spoken. They have avoided proclaiming a miracle; at the same time they have not hesitated to say that natural processes cannot explain the rapidity of this cure. This rapidity, which suppresses the time factor, is supernatural, and the supernatural is not explained by human science.

The gravity of this case was extreme, and there was no hope of cure by ordinary medical means.

In this case, also, there are two things to study which complicate each other. To commence with the tuberculous peritonitis. Peritonitis with effusion can frequently be cured by a laparotomy. But, then, when the peritoneum is closed, there is no permanent wound. If the intestine is perforated it is quite a different matter. Many surgeons have attempted the operation for closing these tuberculous intestinal fistulæ. I have also done so. Here is what usually happens in the cases that are not particularly serious. For some weeks the result seems to be good, then the scar inflames, an abscess with tuberculous pus forms, and the fistula reappears. It is the tuberculous infection of the peritoneum and of the walls of the intestine which causes this result, and this is

what probably would have occurred if M. D—— had been operated upon for his fistula. The patient knew this perfectly, and he did not ask for this second operation. He recognized that his malady was incurable.

I do not doubt that medical men will find in this remarkable case all the elements of truth, just as we are accustomed to find them in our various textbooks. Our science is built up and founded on cases of illness collected and related in this manner. To throw doubt on a case if the evidence is good would be to throw doubt on medicine itself, since, before everything, it is a science of observation, and is based on clinical records.

The operation here was performed by a surgeon well known for his ability. The case was carefully followed by the patient's doctor, and by the professor of clinical medicine at the Catholic faculty of Lille, who minutely described his state before and after his return from Lourdes.

In addition, the patient is himself a medical student, and therefore qualified to give an account of his condition. The fact, then, of an intestinal perforation in the case of a tuberculous peritonitis is incontestable. I said before that the cure by operation of a tuberculous fistula is extremely difficult in those cases in which the peritoneum is covered with tubercles. As to a spontaneous cure in a few minutes of a tuberculous fistula, the nature of the lesion directly contradicts this.

Finally, this was not a simple amelioration,

lasting but for a short time, but a solid and lasting cure, since M. D—— was able afterwards to continue and conclude his medical studies. We find united in this case the three necessary characters required for certitude : the reality of the malady, the rapidity of the cure, impossible in that space of time by a natural process, and the persistence of the cure.

IX. INTESTINAL PERFORATIONS WITH FISTULÆ

Marie Borel, aged twenty-seven years, has lost a brother and a sister from tuberculosis. She herself has always been delicate and often ill. At the age of twenty-one she was first attacked with appendicitis, and attacks of appendicular pain recurred between 1901 and 1903. Dr. Forgue operated upon her at Montpellier, but, unfortunately, it was impossible to obtain particulars of the operation, or of the lesions met with at the time. The patient returned to her home at Mende, suffering with pain in the right iliac fossa, although the scar of the operation was firmly healed. At the end of some months an abscess opened ; this discharged through the operation scar, pus to commence with and subsequently fæcal matter.

In 1904 Dr. Bardol, of Mende, wished to operate upon this fistula. He found so much matting from extensive adhesions that further investigation was impossible. He was obliged to leave things in the same state. The pain increased, and

for a year and a half the patient was confined to her bed.

In 1905 a second abscess and stercoral fistula opened near to the first, communicating with it. Between 1905 and 1907 four new stercoral fistulæ formed posterior to the first. The whole of the intestinal contents passed through these six fistulæ, so that the patient did not pass a single stool in the normal manner in the five months which preceded her journey to Lourdes.

Dr. Bardol described the following as the condition of the fistulæ immediately before her journey to Lourdes: In the right iliac fossa are two fistulæ, one of which is large, has a depth of 6 centimetres, and communicates with the intestine by a straight course. From this fistula comes formed matter of about the thickness of the thumb. In the lumbar region are four smaller fistulæ which allow of the passage of gas and fluid matter from the intestines. The whole flank is considerably indurated, the result of chronic peritonitis. The paralysed bladder was attacked with purulent cystitis. The general troubles were: spasm of the œsophagus, pains in the stomach, and vomiting. The patient was pale and thin, but not cachectic-looking.

1907, *August* 17.—Arrival at Lourdes. The dressing was soaked with green pus and fæcal matter, which covered the abdomen and the whole of the right side.

August 18, 19, 20.—Condition unchanged.

August 21, *morning*.—Pus and formed fæcal matter in the dressing.

PHOTOGRAPHS OF MARIE BOREL

Taken August 22nd, 1907, immediately after her cure.

Here can be seen four scars in the lumbar region. The two lowest are at the level of the iliac crest. The highest is situated four fingers' breadths from the vertebral column.

The scars of the two fistulæ are here seen in the iliac fossa. One is at the upper extremity of the operation incision; the other, considerably the larger, is the fistula through which passed formed motions of about the thickness of the thumb.

August 21, *evening*.—Neither pus nor fæcal matter seen in the dressing. Four of the fistulæ have closed, one of which is the large fistula, having an aperture of 2 centimetres. The patient has had a normal stool, for the first time in five months.

August 22.—The last two fistulæ are closed. The intestine has resumed its functions. Pus has disappeared from the urine.

August 23.—The contraction of the lumbar muscles has disappeared. The patient was examined the same day by Dr. Desplats, of Lille, and Dr. Sablé. They stated that all the fistulæ are closed. Over four of these, amongst which is the largest fistula, the skin has developed and is of a pinkish tinge, resting on a fibrous base, which is slightly retracted. Over the other two the epidermis has not grown, but the fistulæ are closed, and nothing can be squeezed out of them. Their tracks have been apparently closed up. The formation of the skin in the case of these two other fistulæ was only completed some days afterwards. On palpation, the right iliac fossa was supple and painless. The same was the case with the flank and the lumbar region. The vertebral column has regained its flexibility, owing to the absorption of the products of inflammation in its vicinity.

The patient immediately resumed her former mode of life. There was no period of convalescence. Three years afterwards Dr. Bardol stated that the condition of her health was excellent.

We might ask what was the nature of the disease

when operated upon by Dr. Forgue, and if it was of a nature to be spontaneously cured. An inflamed appendix with a stercolith and gangrene following might possibly give rise to a fistula, if it had not been properly removed; but in this form of appendicitis, the onset is always acute. Here this was not the case, the operation being performed by Dr. Forgue during a period of quiescence.

Was this case one of actinomycosis? This is hardly likely, for intestinal actinomycosis is a very rare malady, and the characteristic yellow grains were never seen in the pus from the fistulæ. In any case the malady was one which could not be cured without energetic surgical treatment, and this treatment it never received. It is very probable that the appendicitis of Marie Borel developed in a tuberculous soil. She lost a brother and a sister from tuberculosis, and she herself was always weakly and ailing.

The clinical symptoms correspond with tuberculosis of the cæcum. When a tuberculous appendix is removed, the operation wound closes, but the local pain continues. After some months an abscess forms and communication with the intestine can be established.

This was somewhat the course of events in the patient. To cure lesions so deep-seated and so inveterate, a grave operation would have been necessary in order to resect the six fistulæ, and to remove a considerable length of intestine. A long operation of this sort in septic tissues would in all probability have brought on a fatal peri-

tonitis. What is so striking is the closure, in a few hours, of six pyostercoral fistulæ, one of which was large enough to allow of the passage of formed fæcal matter of the size of a thumb.

The condition was very serious, and it shows clearly what an amount of cicatricial tissue was required for the cure. It would be impossible to prove from our clinical experience that so much scar tissue could be formed by natural processes in so short a time. The whole process of cure is attested to in this case by the evidence of the nurses who dressed the fistulæ morning and evening, and observed the closure which occurred in the interval between the two dressings. The clinical examinations made by Dr. Desplats and Dr. Sablé confirm this. It cannot be said that there was no supernatural cure because the closure of the six fistulæ was not instantaneous. What constituted the supernatural fact is that a great quantity of cicatricial tissue was here formed with extreme rapidity under the worst possible conditions.

It might be asked in what degree has the *time factor* been here wanting? It is very difficult to determine whether the closure of the fistulæ was instantaneous, or whether it took place with extreme rapidity, because this took place beneath the dressings.

Four fistulæ, one of which was very large, were closed on August 21 between the morning and evening dressings. Two smaller fistulæ closed on the 22nd. The intestine on the same day

resumed its normal functions, consequently the calibre must have been re-established.

The whole of these facts are attested by the nurses who dressed the patient between August 18 and 22, Mesdames Arnaud, de Pistoris, and Dehan. Their evidence cannot be called in doubt, and has the evidential value of a medical observation. The final proof of the supernatural here is that the cure was a permanent one, and Dr. Sablé certified this three years afterwards, in August 1910.

X. CANCER

Cures of cancerous tumours are rare. Their reality is disputed because we are unable to make a microscopic examination of the growth. There is a definite reason for this; for such an examination it would be necessary to remove a small portion of the tumour, and this the patients who have resolved to have recourse to Our Blessed Lady instead of to a surgeon will not permit. Nevertheless, we have the clinical signs, and the malign nature of the tumour is sufficiently demonstrated when it has recurred after removal with all the characteristic clinical signs.

The annals of Lourdes give us two very well authenticated cases, and these I shall now discuss.

§

Recurrent Cancer of the Cheek.

René Clément, a retired gendarme of Anglet (Basses-Pyrénées), was under the care of Dr.

Gentilhe. The patient was attacked at the age of seventy with a cancerous growth of the face, situated in the right naso-genial angle. In 1907 this was operated upon by Dr. Moynac, of Bayonne. In 1909, at about the end of two years, recurrence took place. The growth increased rapidly. In 1912 Dr. Gentilhe, the patient's medical man, stated that the recurrence formed a vegetating and projecting tumour attaining almost the size of a hen's egg; at its base it measured 4 centimetres in length. It was situated between the root of the nose, the lower eyelid, which it caused to be retracted, and the upper lip, which was pulled up and everted. The nostril was obstructed and the lachrymal canal closed, resulting in a continual flow of tears.

In 1913 Clément, after considerable hesitation, because he was nearly eighty years of age, and dreaded a second operation, decided to see Dr. Moynac again. Dr. Moynac found the growth too extensive, considering the age of the patient, to advise a second operation. "For the present," he said, "operation is not opportune; you must try to get your strength up, and we will see later."

The patient understood the real meaning of his words, and returned home sad and discouraged, despite the endeavours of his companions to conceal the truth.

Clément's two daughters, one of whom was a Dominican nun, resolved to petition Our Lady of Lourdes; but the patient had no confidence in

the result and could not be persuaded to make the journey to the Grotto. Consequently it was decided to make a novena at home. The daughter who lived with him was accustomed to do the dressing every day.

On the morning of the second day of the novena his daughter, on returning from Mass, was surprised to notice that the bandage put on the previous evening did not project over the tumour as much as usual. Somewhat excited, she removed the bandage and cried out, " But, father, there is nothing there ! " The old man put his hand to his face and discovered that the growth had disappeared.

He was so excited that for forty-eight hours he could neither sleep nor eat. He had experienced no pain at all ; the tumour had not come off into the dressing as if the growth had detached itself. It had not become gangrenous. It had simply disappeared.

Dr. Gentilhe saw René Clément the following day and certified the fact of the cicatrization. There is here a very interesting thing to notice. All the growth had not quite disappeared, for there remained in the thickness of the upper lip a nodule of about the size of a small nut which was very evident beneath the moustache ; this nodule had, however, quite disappeared twenty-four hours later.

Dr. Moynac saw the patient himself three weeks after the cure. He did not hesitate to acknowledge this surprising cure, for the recurrence had proved the malignant nature of the growth, and he

had deemed it to be incurable only three weeks before.

Dr. Pineau examined René Clément in August 1913, about seven months after the cure. Nothing was visible but the scar of the first operation, and two slight depressions in which one could have placed a grain of millet. At the bottom of these depressions the skin was perfectly sound. The lachrymal duct had recovered its patency. The tissues around were perfectly supple and of normal appearance, the lower eyelid was not retracted.

The following is the certificate given by Dr. Gentilhe, who had seen the patient on the day following the occurrence :

René Clément, aged 80 years, a retired gendarme living at Anglet (Basses-Pyrénées), was attacked nine years ago with an epithelioma on the right cheek ; operated upon by Dr. Moynac, of Bayonne, recurrence took place two years later ; in October last year (1912) I saw the patient, and the growth had attained such proportions that I advised a second operation. This, however, the patient refused, alleging that he had suffered too much from the first. However, after three months, as the right nostril was obstructed and the sight was becoming impaired by the growth of the tumour, René Clément decided to see Dr. Moynac again, who then refused to operate, considering the growth too extensive. Much distressed, Clément and his daughter decided to ask a cure from Our Lady of Lourdes, and what was their astonishment when two days afterwards the tumour had completely disappeared, leaving only the scar of the previous operation.

I saw the patient on the day following the cure, which took place during his sleep without his noticing anything.

Since that time I have frequently seen the patient, who remains in good health. There has been no sign of recurrence. The skin is as healthy and supple over the site of the former growth as on the sound side. It is most certainly an extraordinary cure.

(Signed) Dr. Gentilhe (d'Anglet).

Here, then, is one of the rare instances of a cure of cancer, which presents all the necessary evidences of authenticity. We could, of course, discuss clinically the nature of the growth, and ask if it were a specific tumour, a gumma, a benign tumour, or an epithelioma. To me the differential diagnosis seems to be quite easy. We can eliminate benign tumours, such as a lipoma, for their essential nature is not to recur.

Gummata of this region are practically unknown.

To cause the disappearance of a gumma, specific mercurial treatment would have been necessary, and this the patient never had.

Again, if Dr. Moynac had by mistake removed a gumma, the recurrence would have taken place in the wound, and not two years after. But here the wound caused by the operation healed normally, and recurrence two years afterwards is characteristic of what happens when a small portion of the growth is left behind.

I do not for one moment doubt the diagnosis of Dr. Moynac, a surgeon of repute in the south-west of France, to whom the recognition of such a growth was quite simple. The recurrence on the old site, the gradual invasion of the neighbouring

structures, is characteristic of an epithelial cancer of the skin, called also a cancroid. The existence of this growth is incontestable.

It was operated upon and recurred, and all this was demonstrated by the evidence of the operating surgeon, Dr. Moynac, the practitioner having charge of the case, Dr. Gentilhe, and the patient's daughter.

We can demonstrate that the growth existed a very short time before the sudden cure, for two days previously René Clément had been to see Dr. Moynac, on the advice of Dr. Gentilhe. During these two days his daughter had applied the dressing, and she stated that the size of the tumour had not changed. This is certainly true, for what attracted her attention was the fact of the disappearance of the swelling caused by the tumour beneath the dressing. We have here all the requirements necessary for the certitude of the existence of the tumour.

The complete cure of this case presents some other interesting features of which I spoke when discussing the physiology of the supernatural. We read in the statement of Dr. Gentilhe that "the skin is as healthy and supple as on the sound side." This is very important, for it is the proof of the total disappearance of all the cancerous elements. We know that an epithelioma always rests upon a resistant base, and that the borders are always indurated. This physical condition of the skin and tissues is the result of the infiltration into them of the cancerous cells. This induration totally disappeared. There had been, therefore,

a complete disappearance of all the cancerous elements.

Another point : Dr. Gentilhe had observed that on the second day the greater part of the tumour was cicatrized, but that there remained a nodule of about the size of a nut in the upper lip, and this nodule disappeared on the following day. This evidence is of great interest ; it proves that the supernatural cure is not always effected completely at the same moment, but can take place by stages, still preserving its supernatural character.[1]

The disappearance of this large growth leads us naturally to considerations which I discussed with regard to the disappearance of large growths, without harmful effect upon the human organism. A mysterious Power manifested itself definitely here by causing the disappearance of living created matter, and this without leaving any trace, an apparent return to nothingness.

XI. RECURRENT CANCER OF THE TONGUE

Evidence can be seen in the Medical Bureau at Lourdes of a typical case of cancer of the tongue which had recurred, and which had been suddenly cured, not at Lourdes, but at Toulouse.

Catharine Lapeyre entered the hospital of

[1] It is not uninteresting to compare this gradual disappearance of this cancerous growth with the cure of the blind man described by St. Mark (Mark viii. 22-25).

LEFT.—Recurrent ulcerating cancer of the tongue; the large anterior portion of the tongue is partially detached; at the deepest part of the ulceration is the fungating cancerous growth.

RIGHT.—Cicatrization has been effected; the partially detached portion of the tongue is in its normal position.

Toulouse in January 1889, and was operated upon the following March; it was at this time that the accompanying photograph was taken. There can be seen on the right side of the tongue the growing cancer with the characteristic ulcerating portions.

At the end of three months the cancer recurred at the same site, the glands became enlarged, and there was much pain in the ear. Soon the patient showed signs that the blood was becoming infected by the cancerous toxins, and her complexion assumed the tint of wax. The patient refused a second operation.

As she could not be admitted into the train starting for Lourdes, she resolved to make a novena and bathed her mouth with Lourdes water. On the ninth day the growth and the enlarged glands suddenly disappeared without any other treatment. Eight years after nothing could be seen but a whitish scar on the side of the tongue, about a quarter of which organ had been removed.

At the Medical Bureau can also be seen a photograph taken after the cure, which was a lasting one, and this was certified to for the space of sixteen years. It is necessary to emphasize this cure. Cancer of the tongue is most painful, and most grave on account of the rapidity of its course. In fact, there exists a medical axiom which says, "All recurrent and ulcerated cancer of the tongue dies within the year." The diagnosis of this terrible complaint is quite simple when it is as advanced as it was in this case. No one can pretend that the surgeon

at Toulouse was deceived and that he had operated on a benign tumour, since recurrence took place at the end of three months, as is usual with cancer of the tongue. The growth had also involved the glands of the neck, and there were already signs of generalization, as evidenced by the cachexia and the waxy pallor of the patient.

This tumour could not have been a specific tumour, for it gave no sign of this; there were no fissures. Moreover, when by mistake a gumma is removed, we do not see cicatrization take place and persist for three months after the removal, but the tumour recurs immediately, without any interval of deceptive amelioration. In our case there was the appearance of a cure for the space of three months.

It was suggested to the patient that she should again enter the hospital and be operated upon a second time, but this she refused. There is absolute proof of the existence of the growth only a short time before the sudden cure. This cancer was most certainly in full process of recurrence nine days before the supernatural cure. There is no necessity to repeat what I said about the *time factor* in the case of the cure of René Clément. We cannot compare this cure with the natural cure of cancer, because the natural cure of cancer has never been seen; consequently we lack the necessary means of comparison. Finally, we know that cancer of the tongue, especially when it is so far advanced as to need the ablation of a quarter of this organ, always recurs. Here the permanence of the cure was testified to at the

end of sixteen years. The cure, then, is certain, and at the same time one unheard-of naturally.

Special attention is directed to the condition of fungating ulceration of this cancer. In the discussion on the physiological aspect of the miraculous, I said that we never saw a fungating cancerous mass of epidermal cells converted into healthy cells in their totality. Very rarely a certain amount of scarring has been observed in the case of cancer of the skin, but this has never been seen in fungating cancers of mucous surfaces, as in the case of cancer of the tongue. Some Power must, then, have intervened to take from the fungating cancerous cells their destructive properties and convert them into cells capable of forming a solid cicatrix.

What is most extraordinary for the surgeon is the sudden disappearance of the enlarged glands and of the cachexia. The swelling of the glands proved that the evil had invaded the deeper parts of the neck. The waxy tint of the complexion gave proof that the blood was gravely infected.

When speaking of the physiology of the miraculous, I pointed out that the cancerous cells secreted poisons called toxins. In this case these toxins had already been absorbed in considerable quantities, and had gravely infected the blood. The marvellous force which destroyed the cancer cells had also extended its power over the toxins, had destroyed these instantly, and repaired all the damage which these poisons had caused in the blood.

Here, then, is one of these mysterious occur-

rences which we cannot explain, but which compels us to acknowledge that we are in the presence of a supernatural force.

XII. PULMONARY TUBERCULOSIS WITH CAVITATION

Notes of Dr. La Néele, of Lisieux:

Amélie Hébert, born at St. Denis-in-Lisieux. Family history: father suffered from chronic bronchitis, died at 63 years of age of pulmonary congestion and sudden hæmorrhage. A paternal cousin died of pulmonary tuberculosis at 18. Mother died at 62 of chronic bronchitis; both maternal parents died of pulmonary tuberculosis. Maternal cousins, five died of phthisis between the ages of 18 and 23.

Personal antecedents: Enteritis and measles in infancy. Weak health until the age of 12. Was treated with cod-liver oil every winter, was anæmic and had frequent attacks of bronchitis between the ages of 12 and 15. Menstruated at 20 years. Married at 18. Before she was 23 three children were born, one of whom died of tuberculous meningitis. Between 21 and 23 the patient passed each winter in hospital. After her 29th year she had four children, one of whom died at 2 months of inanition, another at 3 years of tuberculous peritonitis. At 33 years of age two months were spent in a hospital on account of bronchitis. At 38 there was bronchitis and hæmoptysis, the patient was under treatment for four years but there was no improvement.

In August, at the age of 42, the following was her condition: she was pale, feeble, and extremely thin,

there was frequent hæmoptysis, and the expectoration was very abundant, amounting to 250 grammes during the day. This sputum contained numerous tubercle bacilli. Vomiting was very frequent, and there was complete loss of appetite. *Auscultation.*—At both apices there was diminution of breath sounds. On the right there was a large cavity with prolonged breathing and moist sounds.

In 1900 the patient set out for Lourdes. During the journey there were several attacks of hæmoptysis accompanied with extreme faintness. On arriving at Lourdes, on the 21st of August, the patient was medically examined; the condition of the lungs was unchanged; on account, however, of her extreme feebleness the patient was advised not to bathe. At this time, in addition to her tuberculous trouble, the patient had a sore on one hip following a carbuncle.

She insisted, however, on bathing in the piscine. At the commencement of the bath she felt an intolerable pain throughout her body; this was followed by a feeling of well-being, and the impression that she was cured. The wound on the hip was cured at the same time; there remained only a reddish scar. The cough disappeared completely, the expectoration and the vomiting ceased and appetite returned.

On her return to Lisieux she was carefully examined by Dr. La Néele. He could only discover some slight indications of consolidation indicated by the respiration being somewhat harsh and blowing in character. All these signs completely disappeared at the end of a few weeks. There was no bronchial secretion. It was only at the end of six weeks that it was possible to obtain any sputum, and this did not contain any tubercle bacilli.

Amélie Hébert regained her strength and weight very quickly. Her work was again resumed. Despite a life of poverty, continual fatigue, and living constantly

with tuberculous children, one of whom died after some months of illness, there was no relapse.

In September 1907, Dr. La Néele tested her reaction with tuberculin 1 centigramme (ancienne), and two days after with 2·05 centigrammes tuberculin. There was no local reaction nor rise of temperature, although the patient continued at her work of carrying stones throughout the day.

In November 1910, ten years after the cure, Amélie Hébert showed no abnormal signs in the lungs and her general health was excellent.

Here is a true medical description of a typical case of a supernatural cure. It is described in clinical form as we are accustomed to see in our medical treatises. It is very complete, since it covers a large period of the life of the patient, and we are considerably indebted to Dr. La Néele for the accuracy and precision of his notes. Doubt cannot be thrown upon this case without casting suspicion on the whole of medical science.

I have only to emphasize certain details of the case.

The patient was obviously attacked with a fatal form of pulmonary tuberculosis. We are accustomed to see in hospitals these unfortunate cases, which have been called "the pillars of the hospital," come to winter in the wards, when the progress of the disease makes it impossible to get about outside. This case was characteristic of the course of the disease met with amongst poor patients.

The scientific side was not neglected by Dr. La Néele. The bacteriological examination of the

sputum confirmed the diagnosis, and the abundance of the bacilli at the time of the patient's departure for Lourdes testified to the gravity of the illness.

At Lourdes, it must be admitted that something very extraordinary occurred. During the journey the patient had several attacks of hæmoptysis accompanied with fainting, and her state was such that there was some hesitation about bathing her.

It is absolutely certain that in his own private practice a doctor would hesitate to bathe a case of advanced tuberculosis in water at a temperature of 14° C. At Lourdes, however, human prudence counts for little, because trust is put in Divine Power. The patient was bathed. She experienced the extreme nervous shock of which I spoke when discussing the physiology of the miraculous, a shock which is very much stronger than could be caused by the simple contact of cold water. Immediately afterwards she experienced a feeling of complete well-being, and was certain that she was cured. I mention the fact again, for it is characteristic of the supernatural cures of Lourdes, and we never meet with these sudden changes in our natural cures. The patient then departed from Lourdes cured.

When she arrived at Lisieux, Dr. La Néele stated that the sputum had disappeared, the general health was excellent, and examination with the stethoscope showed that the lungs were returning to a normal condition. He noted only that the respiration was a little harsh and blowing, showing that there still remained a certain amount

of consolidation. All these signs cleared up after a few weeks, and the respiration everywhere became normal.

When Dr. La Néele could obtain some sputum, which was very difficult, examination showed that there were no tubercle bacilli. The case was cured. The doctor, however, did more; being quite *au courant* with medical science, he tested the reaction to tuberculin, which was negative, and this confirmed the radical cure of the disease. Ten years later the patient, at the age of fifty-two, was in excellent health, and working in the fields to gain her livelihood. I do not deny that in this case it might be said that she was not completely cured, since, on her return, there were some signs of her old trouble, showing that there was still some consolidation, and these signs persisted for some weeks.

This is a definite fact, and Dr. La Néele did not conceal it, but when discussing the question of the *time factor*, I quoted the words of Pope Benedict XIV, who said that every supernatural cure was not necessarily instantaneous, but it was sufficient if it was effected in a shorter time than would be possible in the case of a natural cure. This is exactly what took place here. The lungs of the patient were full of cavities abounding in bacilli, and secreting as much as a quarter of a litre of pus a day.

All this pulmonary suppuration ceased suddenly, the bacilli disappeared, the complete cure being effected some days later. It may well be that the transformation of these cavities into cicatricial

tissue, left a certain amount of thickening, because there was not a re-formation of the pulmonary alveoli ; we see an analogous process taking place in the case of external wounds. There is nothing illogical in thinking that something of this sort took place in the case of the lungs. We know perfectly that autopsies on cases of healed phthisis show us fibrous cicatrices of the lungs. We know also that these cicatrices are only formed very slowly.

What is very interesting here is that all the signs of induration disappeared after a few weeks. The patient also continued to live at home in tuberculous surroundings, and she remained absolutely free from any new infection. The cure was most certainly complete. Dr. La Néele is therefore perfectly justified in presenting this patient as one who has been granted the grace of a supernatural cure.

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